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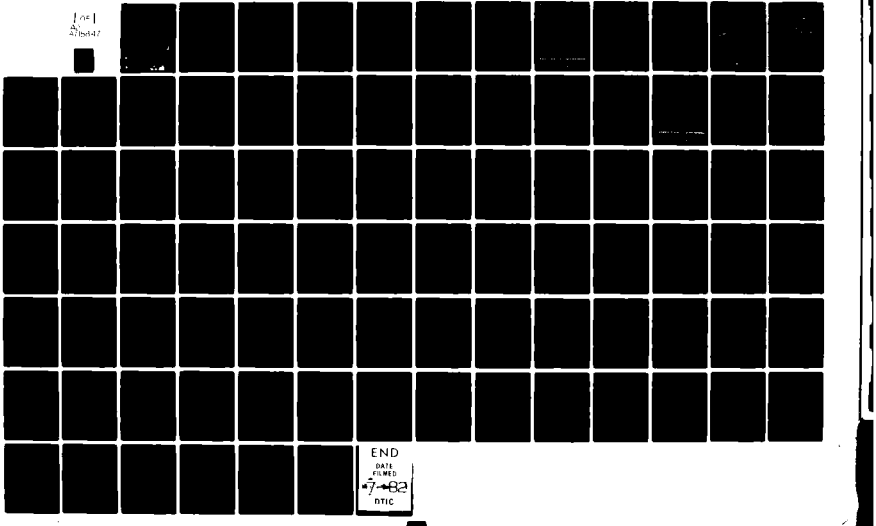

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TERRESTRIAL BIOLOGICAL INVENTORY
HARTWELL DRAINAGE AND LEVEE DISTRICT
GREENE COUNTY, ILLINOIS

FINAL REPORT

Submitted to:

U.S. ARMY CORPS OF ENGINEERS
ST. LOUIS DISTRICT

January 1982

Submitted by:

ENVIRONMENTAL SCIENCE AND ENGINEERING, INC.
St. Louis, Missouri

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The St. Louis District, Corps of Engineers, in planning for improvements to flood control structures for the Hartwell Drainage and Levee District along the lower Illinois River, has contracted for an evaluation of local terrestrial wildlife and vegetation. Nine habitat types were identified: bottomland forest, old field, border habitat, shrub wetland, emergent wetland pond, drainage ditch, developed land, and agricultural land. Approximately 93 percent of the project area is

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composed of agricultural land.

Qualitative evaluations were made at 27 locations in the District and along flanking streams. Common plants and vertebrate animals occurring in each of the habitats were identified. A variety of wildlife species are potentially present, but the most common animals are those which prefer or require a diversity of habitat types.

Human activities which may affect wildlife population in the District are cited, and alternative actions are recommended. Continued conversion of forest, old field, wetland, and border habitats to agricultural land is the primary factor affecting wildlife populations in the District.

ABSTRACT

The St. Louis District, Corps of Engineers, in planning for improvements to flood control structures for the Hartwell Drainage and Levee District along the lower Illinois River, has contracted for an evaluation of local terrestrial wildlife and vegetation. Nine habitat types were identified: bottomland forest, old field, border habitat, shrub wetland, emergent wetland, pond, drainage ditch, developed land, and agricultural land. Approximately 93 percent of the project area is composed of agricultural land.

Qualitative evaluations were made at 27 locations in the District and along flanking streams. Common plants and vertebrate animals occurring in each of the habitats were identified. A variety of wildlife species are potentially present, but the most common animals are those which prefer or require a diversity of habitat types.

Human activities which may affect wildlife populations in the District are cited, and alternative actions are recommended. Continued conversion of forest, old field, wetland, and border habitats to agricultural land is the primary factor affecting wildlife populations in the District.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF APPENDICES

1.0 INTRODUCTION

The St. Louis District, U.S. Army Corps of Engineers is responsible for construction of flood control levees and drainage systems along the lower Illinois River. As part of the Corps of Engineers planning and assessment of proposed structure improvements, inventories of aquatic and terrestrial biota are being conducted. This document is an evaluation of the terrestrial wildlife (vertebrates) and vegetation of the Hartwell Drainage and Levee District.

Improvements are proposed to existing structures to increase flood protection in the District. The proposed plan of improvement will provide increased protection to 9,630 acres of land. Of this area 8,905 acres are highly productive agricultural lands, and 725 acres are of non-crop lands and farmsteads.

The purposes of this study are as follows: to identify the terrestrial habitat types in the Hartwell Drainage and Levee District, to determine the wildlife and vegetation components of each habitat type, to evaluate the importance of each habitat type, to assess the impacts of flood control activities in the District, and to suggest means of mitigating those impacts.

2.0 STUDY AREA AND METHODS

2.1 STUDY AREA

The Hartwell Drainage and Levee District is located in Greene County, Illinois on the east bank of the Illinois River between River Miles 38.1 (mouth of Apple Creek) and 43.1 (mouth of Hurricane Creek) (Figure 1). The levee forms the western boundary of the District and County Highway 743 is the eastern boundary. No towns or villages occur in the District.

The Hartwell Drainage and Levee District consists of 9,630 acres (3,852 hectares [ha]) of primarily agricultural land, bordered by 7.3 miles (11.8 kilometers [km]) of flank levees on the northern and southern project boundaries and 5.0 miles (8.1 km) of riverfront levee.

Schwegman (1973) divided Illinois into several natural divisions, and the area of the Hartwell Drainage and Levee District lies within the Illinois River Bottomlands Division. The alluvial soils of this region are typically covered by bottomland forests of silver maple, American elm, green ash, and pin oak; in presettlement times, prairies were also common on the floodplains. Most of the forested land in the area now lies along the streams outside the levee. Prairie plants are restricted to isolated patches of old field habitat.

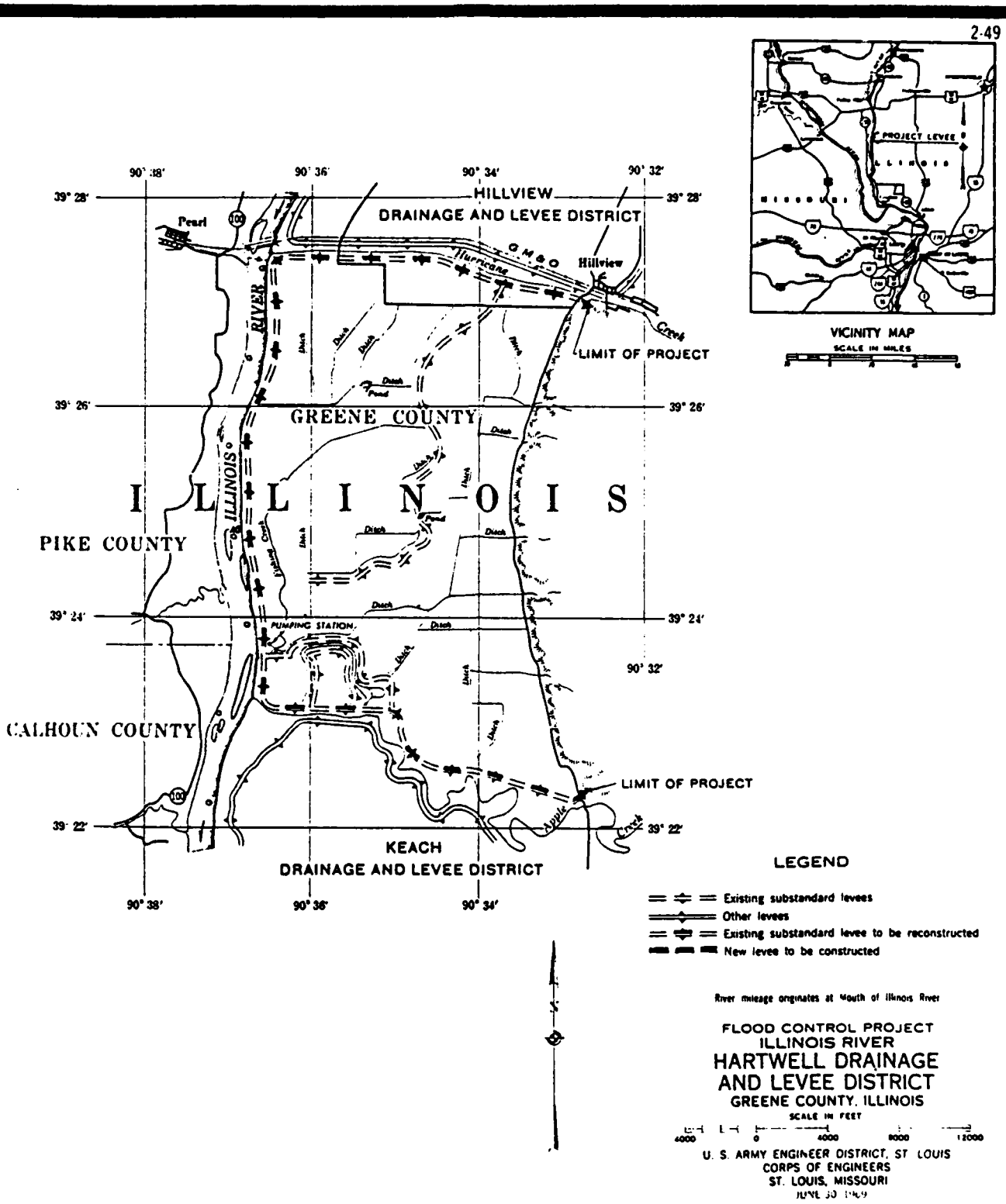


FIGURE 1
LOCATION OF THE HARTWELL DRAINAGE AND LEVEE DISTRICT

HARTWELL DRAINAGE AND LEVEE DISTRICT
ST. LOUIS C.O.E.

Three major ditches drain the District and two small ponds, at least one of which is recharged by the alluvial aquifer, occur on-site. A few very small areas of emergent wetlands are present, and one relatively large shrub wetland occurs in the District. Both Apple and Hurricane Creeks, which flank the District, have been channelized to some extent.

2.2 METHODS

Development of the habitat classification system was the initial study activity. Although only terrestrial habitats are evaluated in this study, both terrestrial and aquatic habitats were mapped.

Table 1 defines the habitat types used to characterize the Hartwell Drainage and Levee District. The levee, river, and stream habitats are delineated on the base map; but, because they are not part of the protected land area, their acreages are not calculated as part of the project area.

Habitat acreages were measured with a polar planimeter on 1:24,000 scale color aerial photographs of the Hartwell Drainage and Levee District dated October, 1979. Estimates of the narrow ditch and border habitats were made by measuring their linear distances and multiplying them by an average width. All habitats were ground-truthed in order to account for land use changes that have occurred since the photos were taken.

Qualitative Surveys

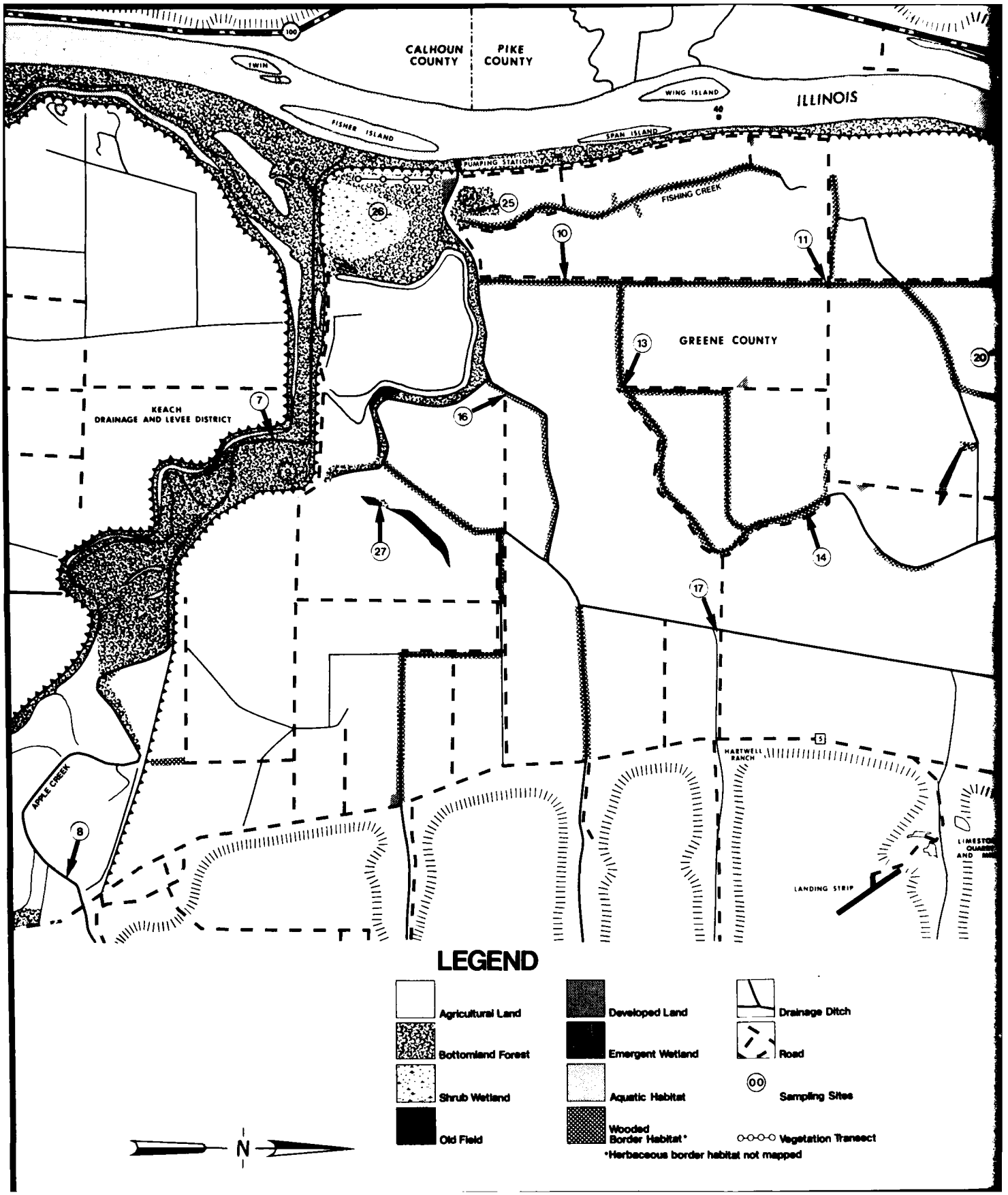
Qualitative evaluations of terrestrial and wetland habitats were made on October 19 through October 21, 1981 at 27 locations in the Hartwell Drainage and Levee District and along its flanking waterways (Figure 2). These evaluations were made October 19 through October 21, 1981 (Appendix A). At each sampling site a brief description of the habitat was made and the following items were noted: the dominant plant species, the estimated percent cover of each vegetation stratum and the common species composing the stratum, tree size classes, observations of wildlife or their sign, and special characteristics that would influence evaluation of the quality of wildlife habitat (e.g. high percentages of common wildlife food plants or presence of potential nesting or cover sites). This information was recorded in the field and transcripts were compiled for the present document (see Appendix A).

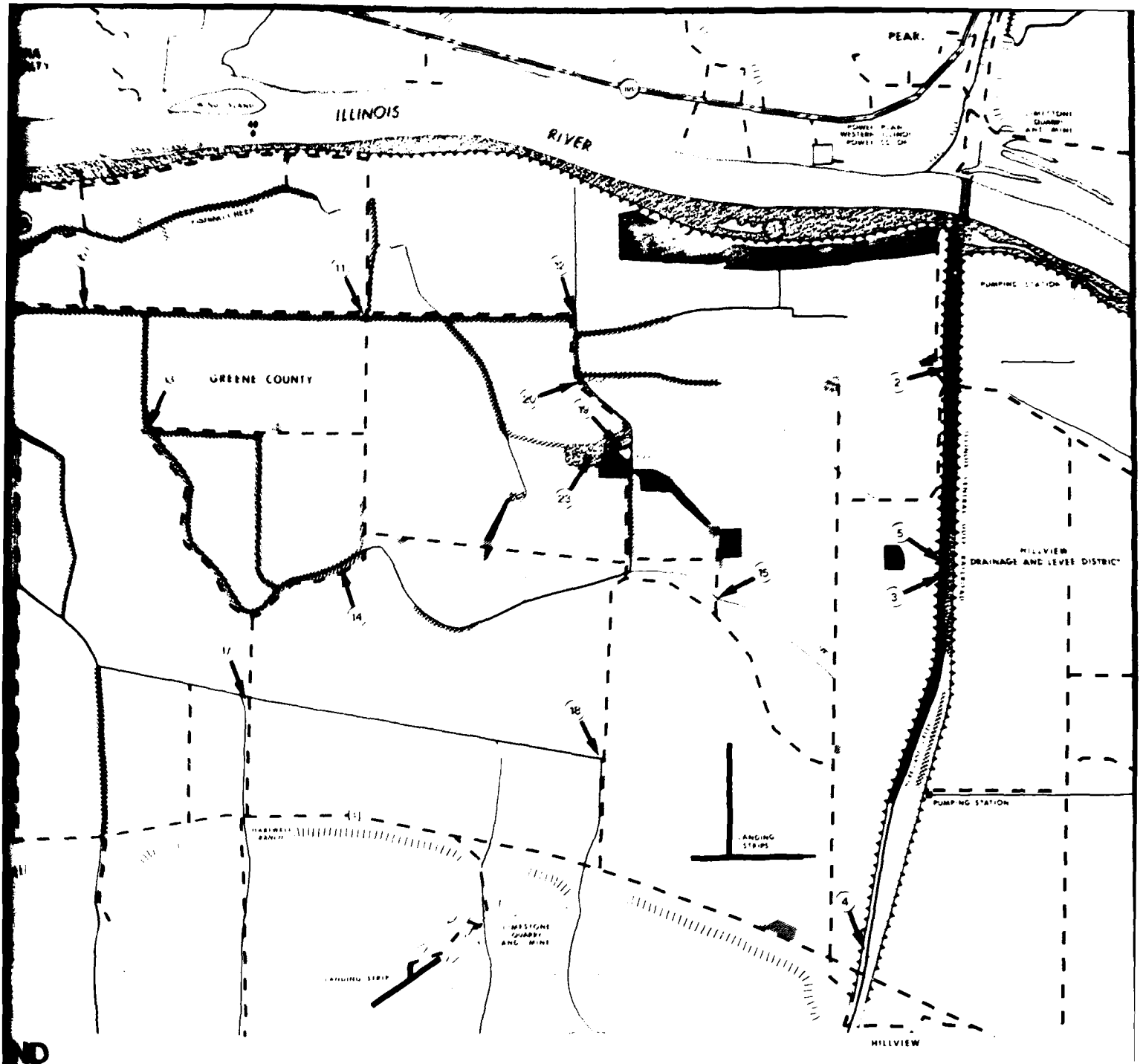
Locations of sampling sites differed slightly from those proposed in the initial project scope of work. Field reconnaisance showed that some individual wetland habitats identified in the work scope were part of a homogeneous shrub wetland and that some forest tracts had been recently cleared. Consequently, the existing old field and wetland habitats were evaluated in place of the sampling areas designated prior to field reconnaisance.

Table 1. Terrestrial and Aquatic Habitat Types Present in the Hartwell Drainage and Levee District

Habitat Type	Description
TERRESTRIAL	
Bottomland Forest	Natural or leveed floodplain dominated by deciduous trees. Summer canopy covers greater than 50 percent of the area.
Border Habitat	Narrow strips of herbaceous or woody vegetation occurring along ditches, streams, fences, roads, and field borders. Less than 25 meters wide (measured across vegetated areas at plant bases, i.e. not counting canopy).
Old Field	Previously disturbed areas which are currently succeeding to natural vegetation. Includes herbaceous and woody plants; tree canopy covers less than 50 percent of the area.
Agricultural Land	Land cultivated by man for crops or maintained for livestock.
Developed Land	Areas used intensively by man (e.g. roads, houses, and farmyards). Little or no vegetation present.
Levee	Maintained areas on and along water control structures. Vegetation dominated by grasses.
AQUATIC	
Emergent Wetland	Permanently or temporarily flooded areas characterized by rooted herbaceous aquatic vegetation. Few trees present.
Shrub Wetland	Permanently or temporarily flooded areas characterized by woody plants less than four meters high and with a dbh of less than 25 cm.
Pond	Standing open water with no drainages to other water bodies.
Drainage Ditch	Artificial water courses created to drain cultivated floodplains.
Stream	Natural waterways flanking the site. Includes Apple and Hurricane Creeks.
River	Waters flowing between the banks of the Illinois River.

Source: ESE, 1981.


CALHOUN COUNTY
PIKE COUNTY
ILLINOIS
TWIN
FISHER ISLAND
WING ISLAND
SPAN ISLAND
PUMPING STATION
FISHING CREEK
GREENE COUNTY
KEACH DRAINAGE AND LEVEE DISTRICT
APPLE CREEK
HARTWELL RANCH
LANDING STRIP
LEGEND
Agricultural Land
Bottomland Forest
Shrub Wetland
Old Field
Developed Land
Emergent Wetland
Aquatic Habitat
Wooded Border Habitat*
Drainage Ditch
Road
Sampling Sites
Vegetation Transect
*Herbaceous border habitat not mapped
N



Developed Land
Emergent Wetland
Aquatic Habitat
Wooded Border Habitat
Herbaceous border habitat not mapped
Drainage Ditch
Road
Sampling Sites
Vegetation Transect

ILLINOIS RIVER FLOOD CONTROL PROJECT

HARTWELL
DRAINAGE AND LEVEE DISTRICT
GREENE COUNTY, ILLINOIS

SCALE IN MILES

0 ¼ ½ 1

SOURCE: CORPS OF ENGINEERS - ILLINOIS RIVER LEVEE MAPS, 1971
ESE, INC, 1981

Quantitative Sampling

Quantitative sampling was required in the project scope of work for two forest tracts. However, field reconnaissance revealed that one tract had been cleared for cultivation and that the other contained a large shrub wetland. Consequently, quantitative sampling was reduced to the forested area bordering the shrub wetland.

A transect running north-south along the western edge of the largest bottomland forest in the Hartwell Drainage and Levee District formed the baseline for the quantitative sampling plots (Figure 2). Concentric circular plots located along the transect formed the sampling areas for the forest vegetation strata.

Vegetation strata were defined for this study, as follows: Overstory--trees equal to or greater than 12 feet (3.7 meters [m]) in height and 10 inches (25 centimeters [cm].) in diameter at breast height (dbh); understory--woody plants less than 12 feet (3.7 m) in height or less than 10 inches (25 cm) dbh; and groundcover--woody and herbaceous vegetation less than 3.3 feet (1 m) in height. The areas sampled for each stratum at every sampling point were: overstory---0.8 acres (0.3 ha); understory--0.04 acres (0.02 ha); and, groundcover--0.01 acres (0.004 ha).

Due to a miscalculation in the field, overstory sampling plots were larger than the 0.2 acre (0.1 ha) areas required by the Corps of Engineers for this study. The sampling plots were located 300 feet (90 m) apart as measured from the edge of the overstory plot borders. Four sampling points were plotted along the transect within the bottomland forest habitat.

2.3 LITERATURE REVIEW

Vegetation

Although the specific area of the Hartwell Drainage and Levee District apparently has not been investigated, the floodplain vegetation communities of the Illinois River have been studied. Klein et al. (1975) identified most of the research conducted on the lower Illinois and middle Mississippi Rivers, including the early qualitative work of Perkins (1875), Hus (1908), and Miller (1923). These early surveys were concerned with identifying the species present and, therefore, they did not produce quantitative assessments of species abundance.

The habitat analyses most pertinent to the Hartwell Drainage and Levee District are those of Klein (1975), which classify the floodplain communities of the region into old fields, wetlands, and five forest types: willow, silver maple-cottonwood, silver maple-cottonwood-pin

oak, pin oak, and oak-hickory. Mohlenbrock (1976) uses nine categories to classify wetlands (including floodplain forests) in the St. Louis District according to the characteristic species found in each. The nine wetlands habitats identified are: 1) wooded and 2) non-wooded seasonally-flooded basins; 3) inland fresh meadow; 4) shrub swamp; 5) cypress swamp; 6) pin oak swamp; 7) shallow and 8) deep inland fresh marshes; and 9) inland open fresh water.

Additional studies of midwestern floodplain vegetation have been conducted in other areas of Illinois. For example, Hosner and Minckler (1963) examined bottomland forests in southern Illinois, and Crites and Ebinger (1970) studied floodplain forest vegetation in eastern Illinois. Silver maple, cottonwood, pin oak, and willow were identified as common dominant overstory species. Although these species are also common dominants along the lower Illinois, River, Klein et al. (1975) suggest that the species composition of the floodplain vegetation of the lower Illinois and middle Mississippi Rivers is more closely associated with vegetation along rivers to the north and west than to the south and east.

No study on the flora of Greene County, Illinois has been published; however, Henry and Scott (1976) made an intensive collection of plants in the County. Their surveys, combined with recent inventories of state flora (Jones, 1963 and Mohlenbrock, 1975) provide the most accurate information on potential flora of the Hartwell Drainage and Levee District. However, none of these works summarizes the plant species known to occur in Greene County or in the District, or lists the most common species found.

Wildlife

As with vegetation, the wildlife communities of the Hartwell Drainage and Levee District have not been studied specifically, although animal communities of midwestern floodplains have been investigated. Most of these studies, however, have involved areas not protected by levees.

Terpening et al. (1975) studied the animal communities of the lower Illinois and middle Mississippi rivers and listed numerous studies of floodplain wildlife. Fawver (1949) investigated bird populations in a central Illinois floodplain forest and found approximately 144 nesting pairs per 100 acres. Few of the birds were ground-nesting species and this was attributed to the frequent flooding of the forest. Blair (1939) found that numerous mammals occupied floodplain forest habitats in eastern Oklahoma, but that prolonged flooding was detrimental to their populations. Shelford (1954) identified several habitat types along the Mississippi River in Tennessee. He concluded that the unprotected floodplain was greatly influenced by the river and that the animal populations present in the floodplain were directly and indirectly determined by the flooding of the bottomland habitats.

Many studies have been conducted on single species or groups of species inhabiting the Illinois River and its floodplain. These studies generally describe communities on unprotected floodplains, i.e. areas outside levees; they are listed in Terpening et al. (1975) and are not recounted here.

Because the Hartwell Drainage and Levee District is in the center of the region studied by Terpening et al. (1975), lists of species which may occur in that study area include species which potentially occur at the District. These species lists, however, must be used in regard to the habitat requirements of individual species. In relation to the total area studied by Terpening et al. (1975), the Hartwell Drainage and Levee District has little available habitat.

The Illinois River Valley has undergone extensive ecological changes in this century due to human activities. Mills et al. (1966) provides a brief history of these impacts to the river and its floodplain. Others have cited the changes in the floodplain environment (Klein et al. 1975, Bellrose et al. 1979, and Sparks et al. 1979). These works address the changes associated with the river and the floodplain outside the levees more fully than they address the impacts to forest and wetland habitat behind the levees.

Consultation

Several individuals were contacted in order to obtain personal accounts of the Hartwell Drainage and Levee District environment and to determine the availability of any unpublished scientific studies or government survey data pertinent to the District. Summaries of conversations with these individuals are contained in Appendix B.

Mr. Joe Janecek of the U.S. Fish and Wildlife Service could provide no site-specific information. According to Mr. Richard Lutz, the Illinois Department of Conservation (IDOC) also possesses little site-specific information on the Hartwell Drainage and Levee District. However, IDOC biologists were able to identify state endangered and threatened species which might occur along the river. Fur values and locations of identified natural areas were also provided by the IDOC.

Dr. Frank Kulfinski of Southern Illinois University, Edwardsville has worked on a site immediately south of the Hartwell Drainage and Levee District and assumed the areas were biologically similar. He knows of no unique species or habitats in the District. Frank Bellrose of the Illinois Natural History Survey and David Harper of IDOC, both of whom conduct waterfowl censuses in the area, feel that the shrub wetland known as Brushy Lake provides good wood duck breeding habitat and should be preserved.

Local residents, Mr. James Powell and Mrs. Evert Clanton, provided information on past and present land use and on wildlife occurring in the area. Both noted that white-tailed deer, opossum, muskrat, red fox, mink, and raccoon are harvested from the District.

3.0 RESULTS AND DISCUSSION

3.1 HABITAT TYPES

Agricultural Land

Approximately 93 percent of the Hartwell Drainage and Levee District is devoted to agricultural use (Table 2). The primary cultivated crops are soybeans, corn, and winter wheat. No pastures are present, and no livestock is raised within the District, except on a temporary basis.

Cultivated fields provide suitable habitat for few wildlife species. Most animals use the cultivated areas only for feeding. Adjacent woods, old fields, and border habitats provide wildlife resting and nesting areas.

Horned larks, common crows, and red-winged blackbirds, commonly occur on cultivated land. Red-tailed hawks, black and turkey vultures, and various swallows sometimes hunt over the croplands. For most species, however, the cultivated land is not suitable except where other habitat is nearby.

Bottomland Forest

The forests of the Illinois River floodplain can be classified according to distance from the river, vegetation structure and plant species composition (Klein et al. 1975). Field investigations for the present study suggest that at least two of the five forest types occur within the Hartwell Drainage and Levee District: the silver maple-cottonwood-pin oak forest and the pin oak forest. Another type identified by Klein et al. (1975), the silver maple-cottonwood community, is present outside the District's levees.

Because the forested areas at the Hartwell Drainage and Levee District are small in size and altered by man, and because most of the field studies were qualitative, it is difficult to classify the communities. Therefore, all wooded areas are identified only as bottomland forest. Forested land covers approximately two percent of the District (Table 2).

Silver maple was the dominant tree species in the wetter sites, and pin oak was most dominant on drier sites. Other common trees are cottonwood, hackberry, sycamore, red mulberry, pecan, American and

Table 2. Areas of Terrestrial and Aquatic Habitats Located Behind the Levees of Hartwell Drainage and Levee District*

Habitat	Area		Percent of Total
	Acres	Hectares	
Agricultural Land	8,905	3,562	92
Bottomland Forest	201	80	2
Border Habitat	191	76	2
Shrub Wetland	87	35	1
Drainage Ditch	86	34	1
Old Field	84	34	1
Developed Land	65	26	1
Emergent Wetland	8	3	<0.1
Pond	3	1	<0.1
TOTALS	9,630	3,852	100

* Does not include the levees or habitats in the district which are riverward of the levees.

Source: ESE, 1981.

slippery elm, and ash. Important shrubs and vines in the District include black willow, hackberry, slippery elm, rough-leaved dogwood, hawthorn, poison ivy, trumpet creeper, and catbriar. Appendix A describes several of the wooded areas in the Hartwell Drainage and Levee District.

Appendix C summarizes the data obtained on the vegetation of the largest bottomland forest in the Hartwell Drainage and Levee District. According to field estimates, the percent cover of trees in this forest is approximately 45 percent. Shrubs provide a cover of 25 percent. Other wooded areas in the District are less dense.

Ground cover vegetation varies greatly in density and diversity between forest sites. In the silver maple-cottonwood forests outside the levees ground vegetation is extremely sparse. This is due to shading by the dense canopy and to the washing, sedimentation, and high moisture created by frequent flooding. Within the leveed area, the forest floor vegetation is composed of lizards' tail, smartweed, sedge, violet, aster, and several other species (Appendix A). Tree seedlings appear to be more common in ground cover of the drier sites.

The bottomland forest is probably the most important habitat to wildlife in the Hartwell Drainage and Levee District. White-tailed deer, gray and fox squirrels, raccoons, cottontails, and eastern moles were observed or their sign noted on these sites. Many other species of mammals are expected to occur in the forests including the short-tailed shrew, white-footed mouse, opossum, southern flying squirrel, and red fox.

Common birds seen in the District's woods during the field surveys were the northern cardinal, blue jay, black-capped chickadee, tufted titmouse, yellow-rumped warbler, common flicker, and red-bellied woodpecker. Numerous other species are expected to occur, particularly during migration and the breeding season (Terpening et al. 1975).

Few reptiles and amphibians were seen during the field surveys. An eastern garter snake and northern spring peeper were observed and Terpening et al. (1975) lists 27 species that potentially occur in bottomland forests in the area. Among the more common species expected to occur are Fowler's and American toads, Blanchard's cricket frog, leopard frogs, and ground skink (Terpening et al. 1975).

Border Habitat

The border habitat type covered only two percent of the Hartwell Drainage and Levee District (Table 2) but was perhaps the most variable in plant species composition and vegetation structure. Border habitats vary from narrow strips of grassy right-of-way along woods and fields to

dense thickets of shrubs and trees along drainage ditches. Some areas support a diversity of plant species; others are dominated by one or two species, typically giant ragweed or foxtail.

The field notes in Appendix A identify the variety of species growing along the ditch and stream borders. Herbaceous plants are common because the narrow border habitats allow light penetration. Also, these areas are periodically mowed by farmers.

Because of their small size and linear shape, border habitats can supply few species of wildlife with all food and cover requirements. Some small birds and mammals and a few reptiles and amphibians reside in the dense border habitats, but for many animals border habitats serve only as travel lanes between other habitats and as temporary, but important, sources of food and cover. Border habitats provide the only accessible cover for most of the Hartwell Drainage and Levee District.

Fox squirrels and cottontails were observed along the drainage ditch borders, and signs of opossoms, raccoons, and red fox were noted. A Franklin's ground squirrel was observed along a grassy roadside. White-footed mice, prairie voles, least shrews and woodchucks are also expected to be found in the border habitats.

Many birds seen in the bottomland forests were also observed in the border habitats. In addition, mourning doves, white-throated sparrows, white-crowned sparrows, American goldfinches, northern juncos, and bobwhite were commonly observed. The leopard frog and eastern box turtle were the only reptiles and amphibians seen along the border habitats although many other species undoubtedly occur in the area (Terpening et al. 1975, Smith 1961). Terpening et al. (1975) found the American and Fowler's toads, leopard frogs, six-lined racerunner, black rat snake, eastern garter snake, and kingsnakes to be the more common species in this habitat type.

Shrub Wetland

A single shrub wetland of approximately 87 acres (35 hectares) in area is located within the District (Table 2). It occurs in the southwest corner of the District and is encompassed by the southern flank levee and the large bottomland forest.

The dominant plant in the wetland is buttonbush and, in fact, few other species are present. Water depths in this habitat range up to about 3 feet (1 m), and most of the plants other than buttonbush are submerged or floating.

The only wildlife seen in the wetland were red-winged blackbirds, mallards, wood ducks, and a pied-bill grebe. Other waterfowl probably

use the shrub wetland occasionally. The dense cover created by the buttonbush and the availability of nesting trees in the adjacent forest indicate that this area provides good breeding habitat for wood ducks.

A duck club currently leases the wetland and maintains hunting blinds on it. According to local resident, Mr. James Powell, however, the new landowner is considering draining and clearing the area for crop production (see Appendix B).

Although few species were seen in the shrub wetland, a wide variety of birds, mammals, reptiles, and amphibians undoubtedly utilize the site, particularly in the summer.

Old Field

Less than one percent of the Hartwell Drainage and Levee District is composed of old field habitat (Table 2). Vegetation in the old field habitats is primarily herbaceous with scattered trees and shrubs, however, each parcel of old field varies in plant species composition.

Old fields are located primarily on the sand deposits which run across the District. These areas are similar to the large sand prairies located further north along the Illinois River; however, the sandy areas within the District have apparently all been cultivated in the past, and some have been invaded by woody species.

Because the areas have been altered by man, they support a variety of non-native plant species and many invader or weedy native plant species. The old fields are utilized by wildlife which prefer open or grassland habitats. Least shrews, deer mice, prairie voles, ground squirrels, and cottontails are probably the most common mammals, although others such as the striped skunk, red fox, coyote, and white-tailed deer undoubtedly use the old fields.

Bobwhite, ring-necked pheasants, eastern meadowlarks, and several types of sparrows are typical birds that prefer old field or grassland habitat. Many other species of birds could be expected in the old fields.

Emergent Wetland

Only three parcels of emergent wetland totaling 8 acres (3 ha) were identified in the Hartwell Drainage and Levee District (Table 2). The largest of these is apparently only a temporary wetland which is cultivated in drier years.

Because of their small size, the emergent wetlands probably support few wildlife species. The most common residents may be typical marsh birds such as red-winged blackbirds, wrens, sparrows, and perhaps, rails.

Several reptiles and amphibians could potentially occur in the wetlands and small mammals would be expected along the drier perimeters of the areas.

Developed Land

By definition this habitat has little or no vegetation and consists primarily of land maintained for human activity. Consequently, these areas are suitable only to a few species of wildlife. Starlings, house sparrows, and rock doves (pigeons) are common near most farm buildings and, if trees are present, birds such as northern cardinals, black-capped chickadees, and blue-jays may be present. Purple martins, barn swallows and chimney swifts may nest in developed areas.

The mammals found in developed areas are primarily the pets and pests of man. Domestic dogs and cats, house mice, and Norway rats are common. Garter snakes and rat snakes are among the few reptiles and amphibians that occur in developed areas.

Because developed areas are small in size (less than one percent of the Hartwell Drainage and Levee District) (Table 2) and are suitable for relatively few species, they are not considered important to the wildlife resource.

Ponds and Drainage Ditches

Although they are not terrestrial habitats, ponds and drainage ditches occur throughout the District and are feeding areas for some terrestrial and semi-aquatic wildlife. Wood ducks, belted kingfishers, a great blue heron, and leopard frogs were seen in or over the drainage ditches and ponds. Muskrat, opossum, and raccoon tracks were seen along the ditch banks. Several species of frogs and turtles potentially occur in the ditches and ponds, and mink and green herons probably feed in the waters.

3.2 ILLINOIS THREATENED OR ENDANGERED SPECIES

No species listed by the state of Illinois as threatened or endangered were observed at the Hartwell Drainage and Levee District. The Illinois Department of Conservation suggests that the bald eagle would be the endangered species most likely to occur on-site. The northern harrier and loggerhead shrike could potentially nest on-site and the red-shouldered hawk, great egret, long-eared owl, and veery might occur periodically in the District. The eastern ribbon snake also potentially occurs in the District. Table 3 lists all the threatened and endangered terrestrial wildlife species in Illinois which could potentially occur within the District.

Table 3. Illinois Endangered and Threatened Wildlife Which May Occur* Within the Hartwell Drainage and Levee District

Common Names	Scientific Name	Preferred Habitats
Gray Bat**	Myotis grisescens	Caves, fields, and forests
Indiana Bat**	Myotis sodalis	Riparian forests and caves
Double-Crested Cormorant	Phalacrocorax auritus	Rivers and Lakes
Snowy Egret	Egretta thula	Wetlands
Great Egret	Casmerodius alba	Wetlands
Little Blue Heron	Florida caerulea	Wetlands
American bittern	Botaurus lentiginosus	Wetlands
Black-Crowned Night Heron	Nycticorax nycticorax	Wetlands
Cooper's Hawk	Accipiter cooperii	Forests
Red-Shouldered Hawk	Buteo lineatus	Forests
Bald Eagle**	Haliaeetus leucocephalus	Along lakes and rivers
Osprey	Pandion haliaetus	Along lakes and rivers
Marsh Hawk	Circus cyaneus	Open fields
Peregrine Falcon	Falco peregrinus	Open fields
Yellow Rail	Coturnicops novaboracensis	Wetlands
Black Rail	Laterallus jamaicensis	Wetlands
Wilson's Phalarope	Steganopus tricolor	Wetlands
Barn Owl	Tyto alba	Forests and fields
Long-Eared Owl	Asio otus	Forests
Short-Eared Owl	Asio flammeus	Fields and wetlands
Brown Creeper	Certhia familiaris	Forests
Yellow-Headed Blackbird	Xanthocephalus xanthocephalus	Wetlands
Common Gallinule	Gallinula chloropus	Wetlands
Veery	Catharus fuscescens	Forests
Loggerhead Shrike	Lanius ludovicianus	Fields
Brewer's Blackbird	Euphagus cyanocephalus	Fields
Henslow's Sparrow	Ammodramus henslowii	Fields

* This list represents all species which could poetentially occur in the District. See text for a discussion of those species most likely to be present.

** Also listed as endangered by the U.S. Fish and Wildlife Service.

Source: ESE, 1981.
Illinois Department of Conservation, 1979.

Although the wildlife species named nest in or migrate through the lower Illinois River Valley, little habitat is available within the Hartwell Drainage and Levee District and the District could not be considered critical habitat for any of the state-listed species.

Table 4 shows Illinois Endangered and Threatened Plants whose distribution may include the Hartwell Drainage and Levee District. None of these species, however, have been identified within Greene County, and the potential for their occurrence in the District is low.

3.3 NATURAL AREAS AND WILDLIFE REFUGES

Figure 3 shows the locations of Illinois Natural Areas and government wildlife refuges within approximately 15 miles (24 km) of the Hartwell Drainage and Levee District. The Pearl Cave Natural Area, an abandoned limestone quarry shaft and bat hibernaculum, is the preserve closest to the District. It is located across the Illinois River near Pearl. Other natural areas nearby protect caves and hill prairies. The Godar-Diamond Island State Conservation Area is located downriver of the District.

3.4 HUNTING AND TRAPPING

According to local residents, Mr. James Power and Mrs. Evert Clanton, (see Appendix B), white-tailed deer are common at the Hartwell Drainage and Levee District, and, in the past, 10-15 deer were killed in the District each fall. District landowners have now apparently refused access to some hunters, and only two deer are taken each year.

As mentioned previously, Brushy Lake Duck Club maintains blinds in the shrub wetland at the southwest corner of the District. Wood ducks and mallards are the species taken most often. The Club's lease to hunt the area may not be renewed according to Mr. Powell (see Appendix B).

Ring-necked pheasants, bobwhite, cottontails, and gray and fox squirrels are other game species that occur on-site. Wild turkeys have been seen by local residents along the levee and bottomland forest near the river. Turkeys have been stocked in Calhoun County across the river from the Hartwell Drainage and Levee District, and any birds seen by local residents have probably crossed the river, perhaps via the river islands. No turkeys are hunted in the District.

Trappers frequently take raccoon, opossum, and muskrat from the District and red fox, mink, and weasel are taken occasionally. Apparently only one person consistently traps at the Hartwell Drainage and Levee District, although other individuals are known to trap occasionally. No

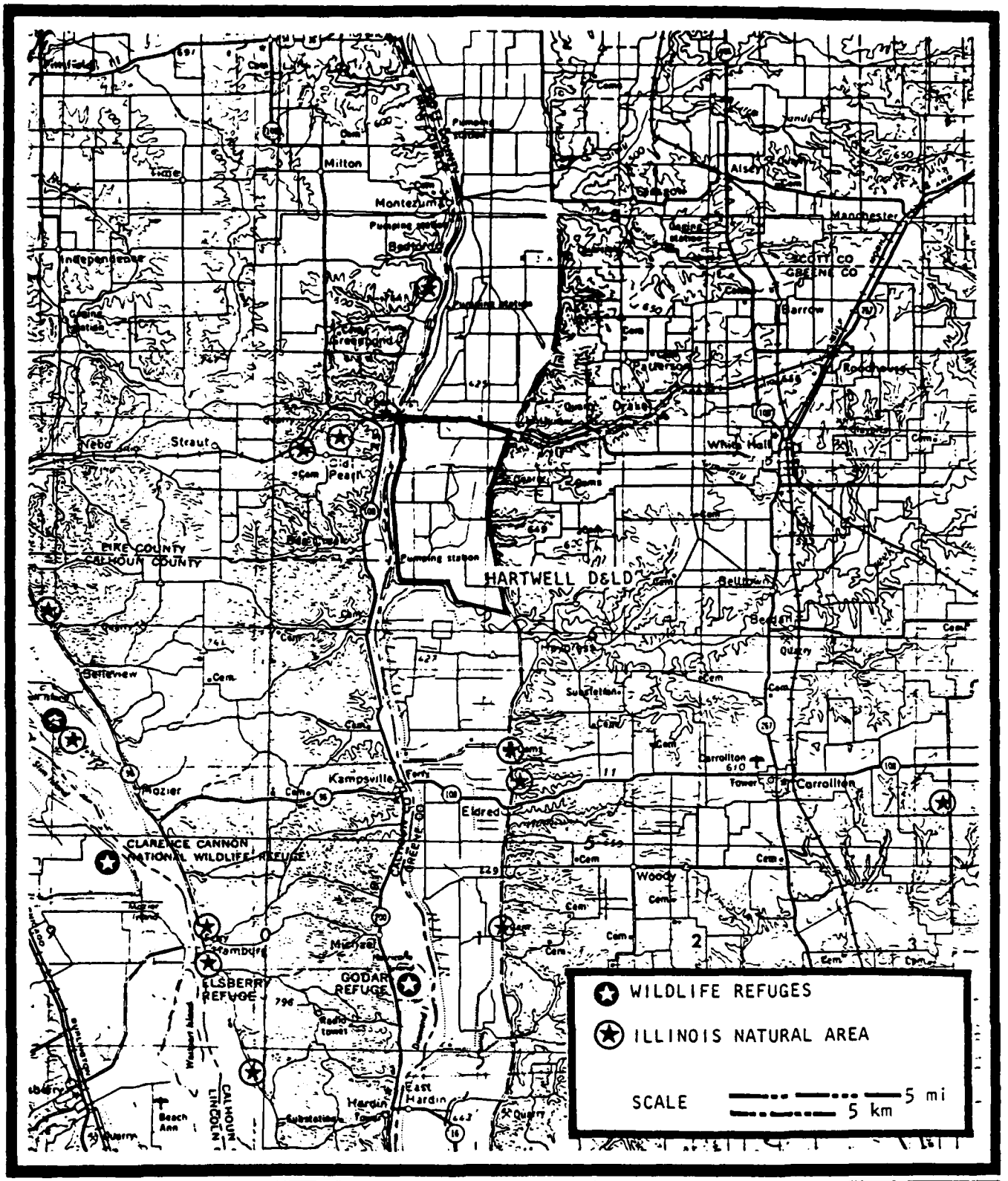


FIGURE 3
WILDLIFE REFUGES AND ILLINOIS NATURAL AREAS NEAR THE HARTWELL DRAINAGE AND LEVEE DISTRICT
SOURCE: ESE, 1981, USGS, 1980

HARTWELL DRAINAGE AND LEVEE DISTRICT
ST. LOUIS C.O.E.

Table 4. Endangered and Threatened Illinois Plants Which May Occur* In the Hartwell Drainage and Levee District

Common Name	Scientific Name	Habitat
Prairie Spiderwort	Tradescantia bracteata	Prairie
Plantain-Leaved Sedge	Carex plantaginea	Forest
Salt Meadow Grass	Leptochloa panicoides	Wetland
Western Wild Lettuce	Lactuca ludoviciana	Prairie
Buffalo Clover	Trifolium reflexum	Forest
Heart-Leaved Plantain	Plantago cordata	Riparian woods
Bulrush	Scirpus polyphyllus	Bottomland forest
Ginseng	Panax quinquefolius	Forest
Aster	Aster undulatus	Forest, Old field
Golden Seal	Hydrastis canadensis	Forest

* Each of the species listed is rare within Illinois and their known distribution suggests that they may occur within the District. However, none of the species has been found in Greene County.

Sources: ESE, 1981.
Illinois Department of Conservation, 1980.

information on the number of pelts taken from the Hartwell Drainage and Levee District could be obtained. State harvest information is maintained only by regions and the take from specific private areas is not available.

3.5 FUTURE OF WILDLIFE RESOURCES

The proposed project would increase flood protection at the Hartwell Drainage and Levee District but would have few direct long-term impacts on wildlife. Consequently, the future of wildlife resources in the District will likely be much the same with or without the proposed flood control project.

Temporary impacts resulting from construction of the improvements would be detrimental to some species of wildlife, and the improved protection from floods might increase land values and agricultural productivity, making clearing of wetlands more profitable. For these reasons, wildlife in the District would probably be indirectly, but adversely, affected by the proposed improvements. Nevertheless, the greatest impacts to wildlife are those presently occurring and unless these impacts are checked little habitat will remain.

4.0 RECOMMENDATIONS

The abundance and diversity of wildlife in the Hartwell Drainage and Levee District are greatly affected by human activities, particularly land use. These conflicts between human activities and wildlife resources in the District are listed below and are followed by possible means of resolving the problems.

4.1 CONFLICTS

A. Wetlands, including bottomland forest, are being drained and cleared to provide more land for cultivation. If present trends continue, little wildlife habitat will be available in the District, other than narrow strips along the drainage ditches.
B. Land is cultivated as close as possible to property lines, roads, and ditches and much of the border vegetation that remains is mowed. Consequently, potential wildlife habitat along field borders, roads, and ditches is eliminated.
C. Most of the drainage ditches are maintained with steep banks making access to the water or travel along the ditch difficult for many species of wildlife.
D. Plowing of fields in the fall destroys residual crops and stubble which are important sources of food and cover for wildlife in winter.

E. Herbicides, insecticides, and fertilizers used for agricultural purposes may have detrimental effects on wildlife and plants in the District and elsewhere.

4.2 OPPORTUNITIES FOR RESOLUTIONS

A. Clearing and draining wetlands represents the greatest threat to wildlife populations in the Hartwell Drainage and Levee District. Landowners are able to convert the wetlands to farmland only because a publicly-funded drainage system is available to drain water from newly cleared lands. Wetland habitat could be conserved and agricultural activities could continue on the majority of the District land, if tiles and ditches for draining existing wetlands were prohibited access to the publicly-funded ditches and pumping facilities.

B. Design and implementation of a wildlife management plan could result in small but significant changes in land use and agricultural practices. The most notable improvement would be an increase in the quality and abundance of border habitats. Other portions of the plan could recommend that only EPA-approved chemicals be used on farms in the District and that all chemicals be used sparingly and according to instructions.

C. Drainage ditches are designed to move water quickly and efficiently from the District. As presently constructed, the ditches inhibit use of the riparian habitat by many species. The ditches could be improved, within engineering restrictions, to better accomodate wildlife. Providing more gentle bank slopes and allowing for riparian vegetation along all ditches are two primary needs.

D. Wildlife resources would benefit if soil conservation plans approved by the Soil Conservation Service were required for all farms drained by the Hartwell Drainage and Levee District system.

5.0 SUMMARY

The Hartwell Drainage and Levee District was originally covered by floodplain forests, sand prairies, and wetlands. The ecological communities were diverse, productive, and closely linked to the Illinois River. The District presently bears little resemblance to the presettlement floodplain. Approximately 95 percent of the District has been cleared and drained and is used primarily for growing crops. Consequently, little area is available for native wildlife and vegetation.

Nevertheless, a wide variety of wildlife and plant species occur because several types of habitats are present. Few of the habitats, however, are large in area and, therefore, the most common wildlife species in the District are those which prefer a diversity of wooded and open habitats and those which can utilize different types of habitats.

The Hartwell Drainage and Levee District provides areas of habitat typical of highly productive farmland in central Illinois and, with some minor changes in land use practices such as mowing and fall plowing, the productivity of existing habitats could probably be increased. Unfortunately, habitat in the District is still being converted to farmland. One of the few remaining tracts of bottomland forest in the Hartwell Drainage and Levee District was recently cleared and the area is soon to be tiled and drained. In addition, the largest remaining forest and the only shrub wetland are apparently going to be cleared in the near future. The continued elimination of the forests and other habitats represents the major factor limiting wildlife populations in the District.

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APPENDIX A

Field Notes and Data

QUALITATIVE HABITAT EVALUATIONS: SAMPLING POINTS AND HABITAT TYPES

Sampling Point	Habitat Type
1	Bottomland Forest
2	Border of Stream
3	Border of Stream
4	Border of Stream
5	Stream Floodplain
6	Border of Stream
7	Border of Stream
8	Border of Stream
9	Stream Floodplain
10	Border of Drainage Ditch
11	Border of Drainage Ditch
12	Border of Drainage Ditch
13	Border of Drainage Ditch
14	Border of Drainage Ditch
15	Border of Drainage Ditch
16	Border of Drainage Ditch
17	Border of Drainage Ditch
18	Border of Drainage Ditch
19	Border of Pond
20	Border of Pond
21	Old Field
22	Old Field
23	Old Field
24	Bottomland Forest
25	Emergent Wetland
26	Shrub Wetland
27	Bottomland Forest/Old Field

TERRESTRIAL BIOLOGY INVENTORY
Hartwell Drainage and Levee District/St. Louis Corps of Engineers

LOCATION: Southwest of Hillview, Illinois on floodplain of Illinois River

OBJECTIVE: Qualitative Evaluation of Terrestrial Biota

DATE: October 19, 1981

WEATHER: Clear, 60°F, wind 10-15 mph, (1620 hrs)

OBSERVER: Jeff Gore

HABITAT TYPE: Bottomland Forest-Riverfront SAMPLING POINT: 1 (Riverside of Levee)

DESCRIPTION:
Bottomland floodplain forest with dense canopy and little ground cover vegetation. Soil is very moist and much standing water is present. Most trees are less than 25 cm dbh, some cottonwoods are larger. Much deposited debris: logs, bottles, etc. Obviously the area floods frequently.

DOMINANT PLANT SPECIES: Silver Maple

VEGETATIVE COVER:

Overstory - 80% cover; silver maple, sycamore, cottonwood

Understory - <10% cover; american elm, red mulberry, grape, hackberry, silver maple

Groundcover - <10% cover; poison ivy, trumpet creeper, violet, Aster sp.

WILDLIFE:

Observation	Sign
northern cardinal	
red-bellied woodpecker	
black-capped chickadee	
bluejay	

VEGETATION - WILDLIFE RELATIONSHIPS:
Sparse ground cover. No mast trees or den trees observed. Dense canopy should be attractive to a variety of bird species.

* See Appendix D for scientific names of organisms.

TERRESTRIAL BIOLOGY INVENTORY
Hartwell Drainage and Levee District/St. Louis Corps of Engineers

LOCATION: Southwest of Hillview, Illinois on floodplain of Illinois River

OBJECTIVE: Qualitative Evaluation of Terrestrial Biota

DATE: October 20, 1981

WEATHER: Clear, 60°F, wind 10 mph

OBSERVER: Jeff Gore

HABITAT TYPE: Border of Stream SAMPLING POINT: 2 (lower stretch of Hurricane Creek)

DESCRIPTION:
Area between stream and levee is wide and 70% vegetated (mostly smartweed). Scattered small silver maples along stream. Banks are mostly steep and barren of vegetation.

DOMINANT PLANT SPECIES: Smartweed

VEGETATIVE COVER:

Overstory - few silver maples

Understory - scattered along stream; silver maple, black willow

Groundcover - 70% cover; smartweed (2 spp.), common plantain, Aster sp., goose grass, pigweed, lovegrass, dock, yellow cress, cocklebur, sedge, foxtail

WILDLIFE:

Observation	Sign
red-winged blackbird	raccoon
western chorus frog	beaver

VEGETATION - WILDLIFE RELATIONSHIPS:
Poor cover. Vegetation is low and sparse. Few common food plants.

* See Appendix D for scientific names of organisms.

TERRESTRIAL BIOLOGY INVENTORY
Hartwell Drainage and Levee District/St. Louis Corps of Engineers

LOCATION: Southwest of Hillview, Illinois on floodplain of Illinois River

OBJECTIVE: Qualitative Evaluation of Terrestrial Biota

DATE: October 20, 1981

WEATHER: Clear, 60°F, wind 10-15, (1800 hrs)

OBSERVER: Jeff Gore

HABITAT TYPE: Border of Stream

SAMPLING POINT: 3 (middle stretch of Hurricane Creek)

DESCRIPTION:
Stream is 3-5 m wide with overhanging trees providing a low and nearly full canopy. Sloped banks are steep and barren of vegetation. A few trees are over 10 cm dbh. Ragweed is very dense and up to 3 m tall in the area between the levee and the streamside trees.

DOMINANT PLANT SPECIES: Black willow, giant ragweed

VEGETATIVE COVER:

Overstory - few trees; silver maple, black willow, red mulberry

Understory - dense in some areas along stream; black willow, silver maple, red mulberry

Groundcover - giant ragweed, clearweed, poison ivy, silver maple seedlings, poke, smartweed, black willow, panic grass, unidentified grass

WILDLIFE:

Observation	Sign
black-capped chickadee	raccoon

VEGETATION - WILDLIFE RELATIONSHIPS:
Banks are steep. Dense shrub cover along the stream, no cavity trees observed. Few common food plants.

* See Appendix D for scientific names of organisms.

TERRESTRIAL BIOLOGY INVENTORY
Hartwell Drainage and Levee District/St. Louis Corps of Engineers

LOCATION: Southwest of Hillview, Illinois on floodplain of Illinois River

OBJECTIVE: Qualitative Evaluation of Terrestrial Biota

DATE: October 20, 1981

WEATHER: Clear, 60°F, wind 15 mph

OBSERVER: Jeff Gore

HABITAT TYPE: Border of Stream

SAMPLING POINT: 4 (upper stretch of Hurricane Creek)

DESCRIPTION:
Stream is broad (5-8 m) and straight with grassy cover and dense stands of small willows along the banks. Naturally vegetated areas are less than 5 m wide, including slopes into the stream. Some portions are mostly herbaceous, others are mostly willow. Adjacent levee is mowed.

DOMINANT PLANT SPECIES: Black willow, goose grass

VEGETATIVE COVER:

Overstory - none

Understory - black willow; in dense scattered stands

Groundcover - smart weed, evening primrose, foxtail, rosinweed, pigweed, goose grass

WILDLIFE:

Observation	Sign
house sparrow	muskrat
rock dove	small mammal tracks
American goldfinch	
eastern meadowlark	

VEGETATION - WILDLIFE RELATIONSHIPS:
Grass is short but dense, willows are in small dense stands. Banks are steep but in spots there is enough slope for animals to walk along them. Willows provide good cover for small birds. Few food plants and no den trees.

* See Appendix D for scientific names of organisms.

TERRESTRIAL BIOLOGY INVENTORY
Hartwell Drainage and Levee District/St. Louis Corps of Engineers

LOCATION: Southwest of Hillview, Illinois on floodplain of Illinois River

OBJECTIVE: Qualitative Evaluation of Terrestrial Biota

DATE: October 20, 1981

WEATHER: Clear, 60°F, wind 10-15

OBSERVER: Jeff Gore

HABITAT TYPE: Floodplain of Stream-inside flank levee

SAMPLING POINT: 5 (middle stretch of Hurricane Creek)

DESCRIPTION:
Floodplain of Hurricane Creek between stream and southern flank levee. Dominated by tall (3 m) giant ragweed. Where the ragweed has fallen down, isolated individuals of other species are present.

DOMINANT PLANT SPECIES: Giant ragweed

VEGETATIVE COVER:

Overstory - none

Understory - a few willows

Groundcover - 5%; black willow, giant ragweed, pigweed, yellow cress, common plantain, smartweed, buttonbush

WILDLIFE:

Observation	Sign
None	

VEGETATION - WILDLIFE RELATIONSHIPS:
Ragweed dominates the area but provides little food or cover. Other than ragweed the soil is nearly barren.

* See Appendix D for scientific names of organisms.

TERRESTRIAL BIOLOGY INVENTORY
Hartwell Drainage and Levee District/St. Louis Corps of Engineers

LOCATION: Southwest of Hillview, Illinois on floodplain of Illinois River

OBJECTIVE: Qualitative Evaluation of Terrestrial Biota

DATE: October 21, 1981

WEATHER: Cloudy, 50°F, wind 3-5 mph, (1005 hrs)

OBSERVER: Jeff Gore

HABITAT TYPE: Border of Stream

SAMPLING POINT: 6 (lower stretch of Apple Creek)

DESCRIPTION:
Stream is 10-15 m wide with steep banks. Silver maple and cottonwood overstory, most trees with a dbh greater than 25 cm. Typical floodplain with bare, moist soil and much deposited debris.

DOMINANT PLANT SPECIES: silver maple

VEGETATIVE COVER:

Overstory - 75% cover; silver maple, cottonwood, black willow, sycamore

Understory - 10% cover; slippery elm

Groundcover - <5% cover; Aster sp., silver maple, slippery elm, grape

WILDLIFE:

Observation	Sign
cricket frog (abundant)	beaver
common grackle	raccoon
red-winged blackbird	
American goldfinch	

VEGETATION - WILDLIFE RELATIONSHIPS:
Little ground cover but dense overstory. Much down timber. Some cavity trees, few shrubs

* See Appendix D for scientific names of organisms.

TERRESTRIAL BIOLOGY INVENTORY
Hartwell Drainage and Levee District/St. Louis Corps of Engineers

LOCATION: Southwest of Hillview, Illinois on floodplain of Illinois River

OBJECTIVE: Qualitative Evaluation of Terrestrial Biota

DATE: October 21, 1981

WEATHER: Clear, 60°F, wind calm

OBSERVER: Jeff Gore

HABITAT TYPE: Border of Stream

SAMPLING POINT: 7 (middle stretch of Apple Creek)

DESCRIPTION:
Stream is over 10 m wide with moderately (45 degree) sloping unvegetated banks.

DOMINANT PLANT SPECIES: Silver maple

VEGETATIVE COVER:

Overstory - 40% cover; silver maple, sycamore, hackberry, river birch, pecan; most trees along stream have a dbh greater than 25 cm.

Understory - scattered, <10% cover; american elm, slippery elm, hackberry, ash

Groundcover - <10% cover; poison ivy, catbrier, Aster sp., grape

WILDLIFE:

Observation	Sign
northern junco	white-tailed deer
common flicker	raccoon
American robin	
white-throated sparrow	

VEGETATION - WILDLIFE RELATIONSHIPS:
Sparse food and cover. Some cavity trees

* See Appendix D for scientific names of organisms.

TERRESTRIAL BIOLOGY INVENTORY
Hartwell Drainage and Levee District/St. Louis Corps of Engineers

LOCATION: Southwest of Hillview, Illinois on floodplain of Illinois River

OBJECTIVE: Qualitative Evaluation of Terrestrial Biota

DATE: October 21, 1981

WEATHER: Clear, 55°F, wind calm, (0745 hrs)

OBSERVER: Jeff Gore

HABITAT TYPE: Border of Stream

SAMPLING POINT: 8 (upper stretch of Apple Creek)

DESCRIPTION:
Vegetated areas along the stream are about 5 miles wide. Many large old trees are growing along the stream. Also many shrubs and herbaceous plants. Cultivated fields are adjacent to the streamside vegetation.

DOMINANT PLANT SPECIES: Silver maple, rough-leaved dogwood, poison ivy

VEGETATIVE COVER:

Overstory - cover varies, but mean estimate is 40%; silver maple, cottonwood, hackberry, white oak, sycamore, chinquapin oak

Understory - rough-leaved dogwood

Groundcover - poison ivy, panic grass, goldenrod, catbrier, daisy fleabane, grape, trumpet creeper, wood sorrel, foxtail, common plantain, heal-all

WILDLIFE:

Observation	Sign
common flicker	opossum
red-bellied woodpecker	raccoon
black-capped chickadee	
blue jay	
red-winged blackbird	
American goldfinch	

VEGETATION - WILDLIFE RELATIONSHIPS:
Streambanks are steep and unvegetated. Several food species, some cavity trees, moderate vegetative cover but little total habitat area.

* See Appendix D for scientific names of organisms.

TERRESTRIAL BIOLOGY INVENTORY
Hartwell Drainage and Levee District/St. Louis Corps of Engineers

LOCATION: Southwest of Hillview, Illinois on floodplain of Illinois River

OBJECTIVE: Qualitative Evaluation of Terrestrial Biota

DATE: October 21, 1981

WEATHER: Clear, 55°F, wind calm, (0835 hrs)

OBSERVER: Jeff Gore

HABITAT TYPE: Floodplain of Stream - inside flank levee

SAMPLING POINT: 9 (middle stretch of Apple Creek)

DESCRIPTION:
Part of the floodplain of Apple Creek. Soil is moist, some standing water is present, much wood debris. Few shrubs and sparse ground cover. Small (<25 cm dbh) silver maples form a dense canopy. (In one area most of the trees are down and the soil is drier and ground cover is more dense).

DOMINANT PLANT SPECIES: Silver maple

VEGETATIVE COVER:

Overstory - 60%; silver maple, black willow, sycamore

Understory - 5% cover; silver maple, buttonbush

Groundcover - <1% cover; canada moonseed, grape, trumpet creeper, giant ragweed (mostly less than 10 cm tall), beggar's tick.

WILDLIFE:

Observation	Sign
common flicker	raccoon
red-winged blackbird	white-tailed deer
white-breasted nuthatch	opossum
American goldfinch	
northern cardinal	
northern junco	

VEGETATION - WILDLIFE RELATIONSHIPS:
Dense overstory for birds but below that the habitat is poor. Little ground cover and few food plants. In fact there is little vegetation at all below the overstory canopy.

* See Appendix D for scientific names of organisms.

TERRESTRIAL BIOLOGY INVENTORY
Hartwell Drainage and Levee District/St. Louis Corps of Engineers

LOCATION: Southwest of Hillview, Illinois on floodplain of Illinois River

OBJECTIVE: Qualitative Evaluation of Terrestrial Biota

DATE: October 21, 1981

WEATHER: Cloudy, 55°F, wind 10-15, (1250 hrs)

OBSERVER: Jeff Gore

HABITAT TYPE: Border of drainage ditch

SAMPLING POINT: 10 (lower stretch segment of ditch 1)

DESCRIPTION:
Ditch is 5-10 m wide with steep, vegetated banks. Vegetation adjacent to bank is 2-5 m wide. Dense herbaceous growth and scattered trees and shrubs.

DOMINANT PLANT SPECIES: foxtail and giant ragweed

VEGETATIVE COVER:

Overstory - scattered, 4 trees/100 m; cottonwood, hackberry, silver maple, pin oak

Understory - scattered shrubs; rough-leaved dogwood, slippery elm, black walnut, sycamore, smooth sumac

Groundcover - foxtail, giant ragweed, fall panicum, daisy fleabane, grape, milkweed, common plantain, smartweed, catbrier, goldenrod, morning glory, poison ivy, pigweed, thistle, lettuce

WILDLIFE:

Observation	Sign
red-winged blackbird	
downy woodpecker	
field sparrow	
black-capped chickadee	
white-throated sparrow	

VEGETATION - WILDLIFE RELATIONSHIPS:
Herbaceous cover (<1 m high) is dense but trees and shrubs are scattered. Little total habitat area. Trees are less than 25 cm dbh. Most of the banks are too steep for animal travel.

* See Appendix D for scientific names of organisms.

TERRESTRIAL BIOLOGY INVENTORY
Hartwell Drainage and Levee District/St. Louis Corps of Engineers

LOCATION: Southwest of Hillview, Illinois on floodplain of Illinois River

OBJECTIVE: Qualitative Evaluation of Terrestrial Biota

DATE: October 19, 1981

WEATHER: Clear, 60°F, wind 10 mph, (1700 hrs)

OBSERVER: Jeff Gore

HABITAT TYPE: Border of drainage ditch

SAMPLING POINT: 11 (middle stretch of ditch 1)

DESCRIPTION:
Ditch is 5-8 m wide with 2-3 m of vegetation on each side. Eastern side has the most trees. Western side is very narrow, mostly foxtail.

DOMINANT PLANT SPECIES: Foxtail, some small cottonwoods

VEGETATIVE COVER:

Overstory - 1 tree/10 m of stream, most have dbh of 10-15 cm; cottonwood, ash, elm

Understory - scattered shrubs; ash, cottonwood, silver maple, smooth sumac, rough-leaved dogwood

Groundcover - fescue, foxtail, trumpet creeper, nightshade, panic grass, Aster sp., common plantain, yarrow, smartweed, thistle

WILDLIFE:

Observation	Sign
Red-tailed hawk (perched in tree)	

VEGETATION - WILDLIFE RELATIONSHIPS:
Vegetation is dense but total vegetated area is small. Stream banks are steep and reach into deep water.

* See Appendix D for scientific names of organisms.

TERRESTRIAL BIOLOGY INVENTORY
Hartwell Drainage and Levee District/St. Louis Corps of Engineers

LOCATION: Southwest of Hillview, Illinois on floodplain of Illinois River

OBJECTIVE: Qualitative Evaluation of Terrestrial Biota

DATE: October 19, 1981

WEATHER: Clear, 60°F, wind 10-15 mph (1720 hrs)

OBSERVER: Jeff Gore

HABITAT TYPE: Border of drainage ditch

SAMPLING POINT: 12 (upper stretch of ditch 1)

DESCRIPTION:
Ditch is 8-10 m wide but vegetated areas alongside are only 2-3 m wide. Small trees and shrubs present on eastern bank. Few woody plants present on west side. Old field is present to the NW. Density and diversity of species varies greatly along the ditch.

DOMINANT PLANT SPECIES: No dominant species

VEGETATIVE COVER:

Overstory - scattered trees; silver maple, american elm, red oak, pecan

Understory - scattered shrubs; rough-leaved dogwood, hackberry, smooth sumac

Groundcover - smartweed, foxtail, goldenrod, giant ragweed

WILDLIFE:

Observation	Sign
red-winged blackbird	red fox
wood duck	
nothern cardinal	

VEGETATION - WILDLIFE RELATIONSHIPS:
Some food plants present but amount of cover is small. Great variation in species and abundance of plants. Some steep banks.

* See Appendix D for scientific names of organisms.

TERRESTRIAL BIOLOGY INVENTORY
Hartwell Drainage and Levee District/St. Louis Corps of Engineers

LOCATION: Southwest of Hillview, Illinois on floodplain of Illinois River

OBJECTIVE: Qualitative Evaluation of Terrestrial Biota

DATE: October 19, 1981

WEATHER: Clear, 50°F, wind 12-15 mph, (1145 hrs)

OBSERVER: Jeff Gore

HABITAT TYPE: Border of drainage ditch

SAMPLING POINT: 13 (lower stretch of ditch 2)

DESCRIPTION:
Vegetated area (including bank) is less than 5 m wide. One side of the ditch has little vegetation; mostly foxtail, no trees. Other side has a single row of trees and diverse herbaceous cover.

DOMINANT PLANT SPECIES: Silver maple and cottonwood. Foxtail and goldenrod are most common herbaceous plants.

VEGETATIVE COVER:

Overstory - 50% or more cover on one side of ditch; silver maple, cottonwood, one pecan.

Understory - black locust, black willow, silver maple, slippery elm, smooth sumac, rough-leaved dogwood, ash, red oak, persimmon

Groundcover - % cover varies greatly; goldenrod, foxtail, poison ivy, bramble, bindweed, Aster, redtop, pigweed, fall panicum, daisy fleabane, thistle , tick trefoil trumpet creeper catbriar.

WILDLIFE:
7v

Observation	Sign
American goldfinch	red fox
song sparrow	raccoon
common flicker	
black-capped chickadee	
northern junco	
leopard frog	

VEGETATION - WILDLIFE RELATIONSHIPS:
Variety of food plants are present, but total vegetated area is small. Streambanks are very steep. Most trees are less than 25 cm dbh.

* See Appendix D for scientific names of organisms.

TERRESTRIAL BIOLOGY INVENTORY
Hartwell Drainage and Levee District/St. Louis Corps of Engineers

LOCATION: Southwest of Hillview, Illinois on floodplain of Illinois River

OBJECTIVE: Qualitative Evaluation of Terrestrial Biota

DATE: October 19, 1981

WEATHER: Clear, 50°F, wind 10-12 mph (1100 hrs)

OBSERVER: Jeff Gore

HABITAT TYPE: Border of drainage ditch

SAMPLING POINT: 14 (middle stretch of ditch 2)

DESCRIPTION:
Little vegetation on west bank of ditch - cultivated to edge of bank. Narrow (<5 m) strip of vegetation on east bank. Some large trees (mostly cottonwoods) are scattered along bank. Vegetation occurs only at immediate stream bank; canopy cover estimation is not appropriate.

DOMINANT PLANT SPECIES: Cottonwood - most with a dbh greater than 30 cm. Ground cover is diverse but catbrier and trumpet creeper are common.

VEGETATIVE COVER:

Overstory - cottonwood, sycamore, ash sp., slippery elm, silver maple, hackberry

Understory - ash sp., rough-leaved dogwood, smooth sumac, black locust, hackberry

Groundcover - catbrier, goldenrod, poison ivy, trumpet creeper, Aster sp., bramble, foxtail, dandelion, spiderwort

WILDLIFE:

Observation	Sign
black-capped chickadee	squirrel nests
cottontail	
white-crowned sparrow	

VEGETATION - WILDLIFE RELATIONSHIPS:
Several food species (dogwood, sumac, poison ivy, blackberry) are present but the vegetated area is so small that the amount of available food and cover is small. Ditch sides are steep, making travel along the stream difficult. No tracks observed.

* See Appendix D for scientific names of organisms.

TERRESTRIAL BIOLOGY INVENTORY
Hartwell Drainage and Levee District/St. Louis Corps of Engineers

LOCATION: Southwest of Hillview, Illinois on floodplain of Illinois River

OBJECTIVE: Qualitative Evaluation of Terrestrial Biota

DATE: October 19, 1981

WEATHER: Clear, 55°F, wind 10-12 mph, (1430 hrs)

OBSERVER: Jeff Gore

HABITAT TYPE: Border of drainage ditch

SAMPLING POINT: 15 (upper stretch of ditch 2)

DESCRIPTION:
Vegetation along ditch is less than 2 m wide, no trees. Some cottonwoods and willow along the ditch 50 m north of sampling point.

DOMINANT PLANT SPECIES: Foxtail and giant ragweed

VEGETATIVE COVER:

Overstory - none at point and downstream, some willows and cottonwoods upstream.

Understory - a few willows

Groundcover - giant ragweed, wheat, foxtail, smartweed sp., dock, wild onion, poison ivy

WILDLIFE:

Observation	Sign
Leopard frog	raccoon tracks

VEGETATION - WILDLIFE RELATIONSHIPS:
Little vegetation available for food or cover. Some scattered small willows and large cottonwoods.

* See Appendix D for scientific names of organisms.

TERRESTRIAL BIOLOGY INVENTORY
Hartwell Drainage and Levee District/St. Louis Corps of Engineers

LOCATION: Southwest of Hillview, Illinois on floodplain of Illinois River

OBJECTIVE: Qualitative Evaluation of Terrestrial Biota

DATE: October 20, 1981

WEATHER: Cloudy, 60°F wind 8-10 mph

OBSERVER: Jeff Gore

HABITAT TYPE: Border of drainage ditch

SAMPLING POINT: 16 (lower stretch of ditch 3)

DESCRIPTION:
Ditch is 5-10 m wide with steep but well vegetated banks. On one side of the ditch is a narrow (1-3 m) strip of mostly herbaceous vegetation. The eastern side is 10-15 m wide with dense cover of trees and shrubs.

DOMINANT PLANT SPECIES: Pin oak

VEGETATIVE COVER:

Overstory - over 30% cover. Nearly all trees are less than 25 cm dbh; cottonwood, pin oak.

Understory - 65% cover. Hackberry, flowering dogwood, smooth sumac, poison ivy, trumpet creeper, sassafras, hawthorn, rough-leaved dogwood

Groundcover - 25% cover. Sedge, trumpet creeper, violet, catbrier, poison ivy, unidentified grass, avens, bramble, wild onion, white snakeroot

WILDLIFE:

Observation	Sign
bluejay	small mammal runs
American goldfinch	
common flicker	
mourning dove	
bobwhite	

VEGETATION - WILDLIFE RELATIONSHIPS:
Dense shrub cover. Many downed trees. Some cavity trees. Several wildlife food plants.

* See Appendix D for scientific names of organisms.

TERRESTRIAL BIOLOGY INVENTORY
Hartwell Drainage and Levee District/St. Louis Corps of Engineers

LOCATION: Southwest of Hillview, Illinois on floodplain of Illinois River

OBJECTIVE: Qualitative Evaluation of Terrestrial Biota

DATE: October 19, 1981

WEATHER: Clear, 45°F, wind 5-8 mph

OBSERVER: Jeff Gore

HABITAT TYPE: Border of drainage ditch

SAMPLING POINT: 17 (middle stretch of ditch 3)

DESCRIPTION:
No trees, few shrubs, herbaceous cover consists primarily of weedy species. Vegetated area is mostly less than 5 m wide on each bank of the ditch. Banks are steep but generally well-vegetated. Vegetation varies greatly in diversity and density; some areas offer good cover, but not much overall.

DOMINANT PLANT SPECIES: Giant ragweed - otherwise very diverse species composition

VEGETATIVE COVER:

Overstory - none

Understory - Sporadic in occurrence; smooth sumac, cottonwood, black willow, slippery elm, elderberry

Groundcover - 100% cover; goldenrod, giant ragweed, fescue, foxtail, bluegrass, goosefoot, common mullein, smartweed spp., bellflower, bindweed, dock barnyard grass, common plantain, downy chess, grape

WILDLIFE:

Observation		Sign
bluejay	white-crowned sparrow	cottontail
wood duck (8 in water)	black-capped chickadee	(Many old mammal
American goldfinch	northern junco	tracks on the mud
belted kingfisher	eastern box turtle	have been
northern cardinal	unidentified frog	obliterated by recent rains.)

VEGETATION - WILDLIFE RELATIONSHIPS:
Most vegetation is on the leveed banks of the ditch. Little cover is available on some portions of the banks, other spots are well vegetated. Food species: foxtail, sumac, grape, elderberry.

* See Appendix D for scientific names of organisms.

TERRESTRIAL BIOLOGY INVENTORY
Hartwell Drainage and Levee District/St. Louis Corps of Engineers

LOCATION: Southwest of Hillview, Illinois on floodplain of Illinois River

OBJECTIVE: Qualitative Evaluation of Terrestrial Biota

DATE: October 20, 1981

WEATHER: Clear, 50°F, wind 5-10 mph, (1830 hrs)

OBSERVER: Jeff Gore

HABITAT TYPE: Border of drainage ditch

SAMPLING POINT: 18 (upper stretch of ditch 3)

DESCRIPTION:
Ditch is 10-15 m wide with steep but moderately-well vegetated banks. Vegetated strip adjacent to bank is less than 2 m wide. Some willow shrubs but mostly foxtail, ragweed, and goldenrod.

DOMINANT PLANT SPECIES: foxtail

VEGETATIVE COVER:

Overstory - very scattered (1-4/100 m); cottonwood

Understory - great variation in cover, dense in some spots; black willow

Groundcover - foxtail, fall panicum, giant ragweed, milkweed, mullein, dandelion, bermuda grass, smartweed, dock, nightshade, pigweed

WILDLIFE:

Observation	Sign
wood duck	
mourning dove	

VEGETATION - WILDLIFE RELATIONSHIPS:
Not much food or cover provided by the narrow strips of vegetation along the ditch. Suitable primarily for some small birds and mammals. Stream banks are mostly too steep for animals to travel along.

* See Appendix D for scientific names of organisms.

TERRESTRIAL BIOLOGY INVENTORY
Hartwell Drainage and Levee District/St. Louis Corps of Engineers

LOCATION: Southwest of Hillview, Illinois on floodplain of Illinois River

OBJECTIVE: Qualitative Evaluation of Terrestrial Biota

DATE: October 21, 1981

WEATHER: Cloudy, 50°F, wind 10 mph, (1500 hrs)

OBSERVER: Jeff Gore

HABITAT TYPE: Border of Pond

SAMPLING POINT: 19
"sandhole pond"

DESCRIPTION:
Relatively large (2+ acres) pond with clear cold water. Adjacent to old field and cultivated land. Sparsely rimmed with trees and shrubs.

DOMINANT PLANT SPECIES: broomsedge

VEGETATIVE COVER:

Overstory - scattered around lake; river birch, red oak, black willow, silver maple

Understory - rough-leaved dogwood, slippery elm, black willow

Groundcover - freshwater cordgrass, broomsedge, partridge pea, mullein, unidentified grass

WILDLIFE:

Observation	Sign
none	

VEGETATION - WILDLIFE RELATIONSHIPS:
Little cover is available immediately adjacent to the pond. The pond serves as a water source for wildlife; its water is more accessible to deer and other animals than the water in the steep-banked ditches.

* See Appendix D for scientific names of organisms.

TERRESTRIAL BIOLOGY INVENTORY
Hartwell Drainage and Levee District/St. Louis Corps of Engineers

LOCATION: Southwest of Hillview, Illinois on floodplain of Illinois River

OBJECTIVE: Qualitative Evaluation of Terrestrial Biota

DATE: October 21, 1981

WEATHER: Cloudy, 50°F, wind 10 mph, (1515 hrs)

OBSERVER: Jeff Gore

HABITAT TYPE: Border of pond SAMPLING POINT: 20

DESCRIPTION:
Small (<.5 acres) pond west of the larger pond. Much trash is present in the pond and on the sides sloping (25 degrees) into it. Pond is covered with duckweed. Perimeter vegetation is 15 m wide, then ground is cultivated.

DOMINANT PLANT SPECIES: No dominants could be identified.

VEGETATIVE COVER:

Overstory - 40% cover; pin oak, slippery elm, cottonwood, silver maple, hackberry; some cottonwoods have a dbh greater than 25 cm, most trees are smaller.

Understory - 30% cover; slippery elm, smooth sumac, hackberry, hawthorn, flowering dogwood.

Groundcover - 40% cover; violet, white avens, heal-all, wheat, goldenrod, lettuce, bramble, freshwater cordgrass, poison ivy, grape, white snakeroot, trumpet creeper, catbrier

WILDLIFE:

Observation	Sign
black-capped chickadee	squirrels nest
yellow-rumped warbler	
red-bellied woodpecker	

VEGETATION - WILDLIFE RELATIONSHIPS:
Good vegetative cover, some food plants and cavity trees. Total habitat area is small.

* See Appendix D for scientific names of organisms.

TERRESTRIAL BIOLOGY INVENTORY
Hartwell Drainage and Levee District/St. Louis Corps of Engineers

LOCATION: Southwest of Hillview, Illinois on floodplain of Illinois River

OBJECTIVE: Qualitative Evaluation of Terrestrial Biota

DATE: October 19, 1981

WEATHER: Clear 55°F, wind 10-15 mph (1520 hrs)

OBSERVER: Jeff Gore

HABITAT TYPE: Old field SAMPLING POINT: 21

DESCRIPTION:
Large, level, low area which currently supports a dense cover of herbaceous vegetation but which apparently is cultivated in some years. The few woody plants present are mostly less than 1 m high. Several areas of shallow water are present; one is .25 ha in size and has cattails and rushes at its perimeter.

DOMINANT PLANT SPECIES: foxtail, smartweed

VEGETATIVE COVER:

Overstory - none

Understory - small persimmons

Groundcover - 100% cover over most of the area; foxtail, dock, rush, smartweed, cottonwood, cocklebur, bramble, poke, goldenrods, freshwater cordgrass.

WILDLIFE:

Observation	Sign
mallard	cottontail
barn swallow	opossum
tree swallow	raccoon
great blue heron	
red-winged blackbird	

sharp-skinned hawk (flew out of underbrush and over to riverside forest)

VEGETATION - WILDLIFE RELATIONSHIPS:
Area is very wet with much standing water. Herbaceous cover is dense. Absence of woody species greater than 1 m tall suggests this habitat is temporary. Field probably did not dry out this summer, so it was left fallow.

* See Appendix D for scientific names of organisms.

TERRESTRIAL BIOLOGY INVENTORY
Hartwell Drainage and Levee District/St. Louis Corps of Engineers

LOCATION: Southwest of Hillview, Illinois on floodplain of Illinois River

OBJECTIVE: Qualitative Evaluation of Terrestrial Biota

DATE: October 20, 1981

WEATHER: Clear, 60°F, wind 10-15 (1705 hrs)

OBSERVER: Jeff Gore

HABITAT TYPE: Old field SAMPLING POINT: 22

DESCRIPTION:
Sandy mound in the middle of a cultivated field. Primarily herbaceous vegetation with some shrubs less than 2 m tall. Vegetation is dense (95% cover). Species composition varies greatly across the area.

DOMINANT PLANT SPECIES: Goldenrod, field mint, broomsedge, and lespedezea are common in spots.

VEGETATIVE COVER:

Overstory - none

Understory - scattered shrubs; red mulberry, red cedar, pecan, rough-leaved dogwood

Groundcover - 95% cover; Aster sp., goldenrod, thistle, common ragweed, field mint, trumpet creeper, bush clover, milkweed, sorrel, pussy toes, unidentified grass, panic grass, nightshade, broomsedge, switchgrass, foxtail, bedstraw.

WILDLIFE:

Observation	Sign
American goldfinch	small mammal runs and holes
eastern meadowlark	quail roost

VEGETATION - WILDLIFE RELATIONSHIPS:
Primarily a grassland community. Vegetation is dense; adjacent to cultivated crops. Small mammal population appears to be high.

* See Appendix D for scientific names of organisms.

TERRESTRIAL BIOLOGY INVENTORY
Hartwell Drainage and Levee District/St. Louis Corps of Engineers

LOCATION: Southwest of Hillview, Illinois on floodplain of Illinois River

OBJECTIVE: Qualitative Evaluation of Terrestrial Biota

DATE: October 19, 1981

WEATHER: Clear, 50°F, wind 10-15 mph

OBSERVER: Jeff Gore

HABITAT TYPE: Old field

SAMPLING POINT: 23
"sandhole woods"

DESCRIPTION:
Old field with a mosaic of young forest. Adjacent to pond and cropland. Some portions of this area have more trees than others. Area is traversed by a dirt road and a power line. Soil is very sandy. Tree density increases to the south of the pond.

DOMINANT PLANT SPECIES: Vegetation is not homogeneous; no dominant species.

VEGETATIVE COVER:

Overstory - 0-40%, varies greatly; Pine, slippery elm, river birch (at pond), pecan, silver maple, pin oak.

Understory - 0-80%; smooth sumac, rough-leaved dogwood, red oak, pecan, pin oak, hackberry, mulberry, grape, black locust, catbrier.

Groundcover - 100% cover; foxtail, broomsedge, panic grass, goldenrod, thistle, milkweed, daisy fleabane, bramble, poison ivy, lettuce, red cedar, tick trefoil, partridge pea, freshwater cordgrass, virginia creeper, three-awned grass

WILDLIFE:

Observation		Sign
song sparrow	white-throated sparrow	squirrel nest
black-capped chickadee	downy woodpecker	rabbit runs
belted kingfisher		raccoon
blue jay		
tufted titmouse		

VEGETATION - WILDLIFE RELATIONSHIPS:
Good cover for small birds and mammals. Numerous food plants. Few cavity trees apparent. Close to water and cropland.

* See Appendix D for scientific names of organisms.

TERRESTRIAL BIOLOGY INVENTORY
Hartwell Drainage and Levee District/St. Louis Corps of Engineers

LOCATION: Southwest of Hillview, Illinois on floodplain of Illinois River

OBJECTIVE: Qualitative Evaluation of Terrestrial Biota

DATE: October 21, 1981

WEATHER: Cloudy, 55°F, wind 10 mph, (1345 hrs)

OBSERVER: Jeff Gore

HABITAT TYPE: Bottomland Forest SAMPLING POINT: 24

DESCRIPTION:
Forest is young; understory is dense and few trees exceed 25 cm dbh. Overstory is sparse and there are several open areas. Some wet areas.

DOMINANT PLANT SPECIES: No obvious dominant

VEGETATIVE COVER:

Overstory - 5% cover; pin oak, sycamore, cottonwood, river birch, honey locust, silver maple

Understory - 100% cover; hawthorn, slippery elm, box elder, red mulberry, rough-leaved dogwood, pecan, river birch, smooth sumac, sycamore, trumpet creeper, poison ivy, silver maple

Groundcover - 20% cover; sedge, switchgrass, ground ivy, common plantain, trumpet creeper, catbrier, poison ivy, bramble, goldenrod, bermuda grass, oak seedling, canada moonseed, heal-all, slippery elm, white snakeroot, Aster sp., violet

WILDLIFE:

Observation		Sign
eurasian tree sparrow	northern cardinal	white-tailed deer
northern junco	ruby-crowned kinglet	
fox squirrel	song sparrow	
red-bellied woodpecker	field sparrow	
	white-throated sparrow	

VEGETATION - WILDLIFE RELATIONSHIPS:
Dense shrub growth. Few large trees; no cavities observed. Good nesting cover for birds. Many food plants.

* See Appendix D for scientific names of organisms.

TERRESTRIAL BIOLOGY INVENTORY
Hartwell Drainage and Levee District/St. Louis Corps of Engineers

LOCATION: Southwest of Hillview, Illinois on floodplain of Illinois River

OBJECTIVE: Qualitative Evaluation of Terrestrial Biota

DATE: October 21, 1981

WEATHER: Cloudy, 55°F, wind 10 mph

OBSERVER: Jeff Gore

HABITAT TYPE: Emergent wetland SAMPLING POINT: 25

DESCRIPTION:
Small area (0.5 ha) with little standing water and soggy clay soil. All herbaceous vegetation less than 1 m high. Adjacent to cropland and forest. Dogwood, silver maple, and willow shrubs are along the perimeter.

DOMINANT PLANT SPECIES: Munro grass

VEGETATIVE COVER:

Overstory - none

Understory - only around perimeter

Groundcover - munro grass, rush, lizards-tail, smartweed, barnyard grass

WILDLIFE:

Observation		Sign
red-winged blackbird	leopard frog	raccoon
song sparrow	cricket frog	opossum
lark sparrow		many small mammal runs
white-throated sparrow		
field sparrow		

VEGETATION - WILDLIFE RELATIONSHIPS:
This meadow is not large in size but is the only area of its kind in the D&L district. Offers habitat to grassland and/or wetland species. May have more standing water in the spring.

* See Appendix D for scientific names of organisms.

TERRESTRIAL BIOLOGY INVENTORY
Hartwell Drainage and Levee District/St. Louis Corps of Engineers

LOCATION: Southwest of Hillview, Illinois on floodplain of Illinois River

OBJECTIVE: Qualitative Evaluation of Terrestrial Biota

DATE: October 20, 1981

WEATHER: Clear, 65°F, wind 15-25 mph

OBSERVER: Jeff Gore, Noreen Connolly

HABITAT TYPE: Shrub Wetland SAMPLING POINT: 26

DESCRIPTION:
This area lies in the center of the floodplain forest in the SW corner of the district. The perimeter is dry ground (see forest notes) but it grades into a wetland with water about 1 m deep. Elms, willows, and silver maples are common where the water is less than 10 cm deep, but buttonbush predominates where the water is deeper. In fact, buttonbush is the only woody plant over most of the wetland and it covers 90% of the area. Some open water is present.

DOMINANT PLANT SPECIES: Buttonbush

VEGETATIVE COVER:

Overstory - none

Understory - black willow, silver maple, slippery elm, ash in shallow water; buttonbush covers 90% of deeper water area.

Groundcover - flooded; some smartweed, lizards tail, coontail, and duckweed

WILDLIFE:

Observation	Sign
mallards (common)	
wood ducks	
red-winged blackbirds	

VEGETATION - WILDLIFE RELATIONSHIPS:
Good duck habitat. Buttonbush provides thick cover and aquatic plants and invertebrates are an abundant food source. Large open water areas are apparently maintained for hunting, each has a hunting blind. No sign of aquatic mammals.

* See Appendix D for scientific names of organisms.

TERRESTRIAL BIOLOGY INVENTORY
Hartwell Drainage and Levee District/St. Louis Corps of Engineers

LOCATION: Southwest of Hillview, Illinois on floodplain of Illinois River

OBJECTIVE: Qualitative Evaluation of Terrestrial Biota

DATE: October 21, 1981

WEATHER: Cloudy, 50°F, wind 8-10 mph, (1050 hrs)

OBSERVER: Jeff Gore

HABITAT TYPE: Forest/old field SAMPLING POINT: 27

DESCRIPTION:
Mosaic of forest and old field set between cultivated fields. Soil is very sandy (probably why the land is not cultivated). Density and diversity of plants varies widely. Some portions are pin oak forest, other parts are more accurately described as old field.

DOMINANT PLANT SPECIES: Pin oak, poison ivy, trumpet creeper, goldenrod

VEGETATIVE COVER:

Overstory - 50% cover in woods; pin oak, pecan, black walnut; scattered in old field are pin oaks and black cherry

Understory - 15% in woods; flowering dogwood, black cherry, pin oak, slippery elm. Scattered shrubs in old field; smooth sumac, black cherry, pin oak, rough-leaved dogwood

Groundcover - <5% in woods; black cherry, oak, trumpet creeper, poison ivy, grape. Dense ground cover in field; trumpet creeper, goldenrod, wheat, poison ivy, partridge pea, giant ragweed, broomsedge

WILDLIFE:

Observation	Sign
blue jay	cottontail
American goldfinch	white-tailed deer
	eastern mole
	squirrels nest

VEGETATION - WILDLIFE RELATIONSHIPS:
Good interspersion of field and forest. Several food plant species. Some potential cavity trees. Not large in area but relatively good quality habitat. Adjacent to cropland.

* See Appendix D for scientific names of organisms.

QUANTITATIVE VEGETATION SURVEYS

Date: October 20, 1981
Observer: J. Gore, N. Connolly
Project: Hartwell
Method: Percent Cover
County-State: Greene, IL
Sample: 1
Site Code: Bottomland Forest

Stratum	Species	Percent Cover
Groundcover		30%
	Laportea canadensis	<25
	Smilax sp.	<1
	Rubus sp.	<5
	Ranunculus sp.	<5
	Pilea pumila	<5
	Viola	<5
	Unidentified grass	<1
Understory		20%
	Cornus drummondii	5
	Crataegus sp.	5
	Sambucus canadensis	<1
	Quercus bicolor	<1
	Morus rubra	<1
	Tilia americana	5
	Celtis occidentalis	<5
Overstory		60%
	Celtis occidentalis	10
	Acer saccharinum	40
	Quercus bicolor	5
	Ulmus americana	5

Habitat Description:
Silver maple is obviously the dominant tree. Hackberry is also common. Mixed size class, largest maple is 42 cm dbh, most are much smaller. Good cover and food for wildlife. Some cavities in trees.

Wildlife:
yellow-rumped warbler
blue jay
black-capped chickadee
eastern garter snake

QUANTITATIVE VEGETATION SURVEYS

Date: October 20, 1981
Observer: J. Gore, N. Connolly
Project: Hartwell
Method: Percent Cover
County-State: Greene, IL
Sample: 2
Site Code: Bottomland Forest

Stratum	Species	Percent Cover
Groundcover		60%
	Laportea canadensis	35
	Pilea pumila	<1
	Smilax sp.	<1
	Rosa sp.	<1
	Unidentified Grass	5
	Ranunculus sp.	5
	Aster sp.	5
	Campsis radicans	5
	Viola sp.	<1
	Rubus sp.	<1
	Polygonum sp.	<1
	Ulmus americana	<1
	Geum canadensis	<1
Understory		20%
	Lindera benzoin	<1
	Carya illinoensis	<5
	Cornus drummondii	<5
	Crataegus sp.	<5
	Ulmus rubra	<5
	Euonymus atropurpureus	<5
	Celtis occidentalis	<5
	Morus rubra	<1
Overstory		30%
	Acer saccharinum	5
	Celtis occidentalis	20
	Quercus alba	<1
	Crataegus sp.	<1
	Tilia americana	<1
	Prunus serotina	<1

Habitat Description:
There is an opening in the canopy at this point and that is probably the cause of the dense ground cover vegetation. Shrubs become dense near the water.

Wildlife:
cottontail, blue jay, common flicker, black-capped chickadee, red-bellied woodpecker, yellow-rumped warbler, tufted titmouse, common flicker

QUANTITATIVE VEGETATION SURVEYS

Date: October 20, 1981
Observer: J. Gore, N. Connolly
Project: Hartwell
Method: Percent Cover
County-State: Greene, IL
Sample: 3
Site Code: Bottomland Forest

Stratum	Species	Percent Cover
Groundcover		55%
	Laportea canadensis	20
	Unidentified grass 1	20
	Geum candensis	<1
	Campsis radicans	<1
	Viola sp.	<1
	Ranunculus sp.	<1
	Pilea pumilla	10
	Rosa sp.	<5
	Smilax sp.	<1
	Unidentified grass 2	<1
Understory		10%
	Sambucus canadensis	<1
	Ilex decidua	<10
	Cornus drummondii	<1
	Quercus alba	<1
Overstory		40%
	Celtis occidentalis	<25
	Acer saccharinum	10
	Carya illinoensis	5
	Ulmus rubra	<1
	Populus deltoides	<1
	Acer negundo	<1
	Quercus rubra	<1

Habitat Description:
Many downed trees. Mixed age class, less than 20% of trees have dbh greater than 25 cm. Area grades into water on east side.

Wildlife:
Northern cardinal
American robin
Common flicker

QUANTITATIVE VEGETATION SURVEYS

Date: October 20, 1981
Observer: J. Gore, N. Connolly
Project: Hartwell
Method: Percent Cover
County-State: Greene, IL
Sample: 4
Site Code: Bottomland Forest

Stratum	Species	Percent Cover
Groundcover		<5%
	Vitis sp.	<1
	Pilea pumila	<1
	Acer saccharinum (seedling)	<1
	Carex sp.	<1
	Saururus cernuus	<1
Understory		40%
	Ulmus americana	25
	Quercus palustrus	<1
	Carya illinoensis	<1
	Acer saccharinum	10
	Ilex decidua	<1
	Crataegus sp.	<5
Overstory		50%
	Acer saccharinum	25
	Populus deltoides	<25
	Fraxinus sp.	<1
	Ulmus americana	<5
	Platanus occidentalis	<1

Habitat Description:
Woods has numerous downed trees but no cavities are apparent in standing trees. Forest grades quickly into shrub swamp. Soil is very wet with some standing water. Little ground cover. Mixed age classes of trees; 20% have dbh greater than 25 cm.

Wildlife:
woodcock
red-bellied woodpecker
northern spring peeper

APPENDIX B

Summaries of Conversations Regarding Unpublished Data and Personal Accounts of the Hartwell Drainage and Levee District

St. Louis COE
Hartwell D & LD Study
81-822

TELEPHONE CONTACT REPORT

Person Completing Report: Keith Govro Date of Report: 11/16/81

Telephone Contact Date of Contact: 11/16/81

Person(s) Contacted: Title/Affiliation:

Joe Janecek USFWS - Carbondale Field Office

Address: Call In ____ Call Out X

Phone #: 618-457-3662

Summary of Discussion: The USFWS does not involve itself with state-endangered species; this information would have to come from IDOC. Statistics on sport fishing and game harvest would also come from IDOC, if they are available for the Hillview area. Dick Lutz of IDOC would be a good contact for getting this type of information. Joe is not aware of any field studies or research being done around Hillview area at this time.

Joe emphasized the importance of and the interest by the USFWS in preserving wetlands. He would like to see wetlands discussed in the report with recommendations for preserving wetlands. Joe also indicated that these districts often have considerable local sport fishing effort.

Distribution: [X] Govro [X] Core [ ] ____
[X] Hall [ ] ____ [ ] ____

St. Louis COE
Hartwell Terrestrial Ecology
81-821

TELEPHONE CONTACT REPORT

Person Completing Report: J.A. Core Date of Report: 11/13/81

Telephone Contact Date of Contact: 11/13/81

Person(s) Contacted: Title/Affiliation:

Dick Lutz Impact Analysis Section Division of Planning

Address: Illinois Dept. of Conservation
605 Stratton Bldg.
Springfield, Il 62706

Call In ____ Call Out XX

Phone #: 217/782-3884

Summary of Discussion: Informed Mr. Lutz that ESE is performing surveys for the St. Louis Coe on Hartwell (Terrestrial) and Hillview (Aquatic) drainage and levee districts. I told him the general location; he felt he had a map of the areas.

I asked about information onstate T and E species, natural areas, hunting pressure and fur resources (Hartwell), and fishery/invertebrate data and sport fishery resources (Hillview). Lutz felt the best information on hunting was Preno & Labisky's work; I said we have a copy of that report. He will talk to DOC fur biologist about fur values and take in the district. Will also discuss with DOC biologist state-listed T & E species that may be present in each district. Will send most recent map and data printout on state natural areas in Greene and Scott County.

Best aquatic data is probably in County water resource reports. Will check with DOC biologists to see if any site specific data has been collected recently and if any information is available on value of fisheries resource.

Distribution: [XX] Core [XX] 81 821 file [XX] 81 822 file
[XX] Govro [ ] _____ [ ] _____

St. Louis COE
Hartwell Terrestrial Ecology
81-821

TELEPHONE CONTACT REPORT

Person Completing Report: J.A. Gore Date of Report: 11/18/81

Telephone Contact Date of Contact: 11/18/81

Person(s) Contacted: Title/Affiliation:

Dr. Frank Kulfinski Professor - Biology SIU-E

Address: Southern Illinois University Call In ____ Call Out XX

Edwardsville, Illinois

Phone #: 618/692-2728

Summary of Discussion: Kulfinski had no first hand knowledge of the Hartwell District. He did work for the Eldred and Spankey D & L District but never went north of that site. He said the Corps should have copies of the Eldred Inventory and that woulld represent most of the information he has about the area. He said most of the area is cultivated with some isolated pin oak forests and buttonbush swamps. I said the Hartwell district is very similiar. He knows of no unique habitats or endangered species on the Hartwell site.

He said Carol Axtell of Lewis and Clark College did the biology for Nutwood D & L District and she might be another contact.

Distribution: [XX] Gore [XX] File [ ] ____

[ ] [ ] ____ [ ] ____

St. Louis COE
Hartwell Terrestrial Ecology
81-821

TELEPHONE CONTACT REPORT

Person Completing Report: J.A. Gore Date of Report: 11/18/81

Telephone Contact Date of Contact: 11/18/81

Person(s) Contacted: Title/Affiliation:

Frank Bellrose Biologist - Illinois Natural History Survey

Address: Havanna Illlinos Call In ____ Call Out XX

Phone #: 309/543-3950

Summary of Discussion: Bellrose felt there was little natural habitat in the district and I concurred. I mentioned that the 85 + acre buttonbush swamp (Brushy Lake) and Bellrose said that it was probably good wood duck breeding habitat. He remembered it as always having water during his annual waterfowl censuses and that indicates even further that it is probably good wood duck habitat.

He knew of no other unique or unusual wildlife or habitat features in the are. He suggested that we recommend protection of Brushy Lake from clearing because wood duck breeding habitat in Illinois is declining.

Distribution: [XX] Gore [XX] File [ ] ____

[ ] [ ] ____ [ ] ____

St. Louis COE
Hartwell Terrestrial Ecology
81-821

TELEPHONE CONTACT REPORT

Person Completing Report: J.A. Gore Date of Report: 11/20/81

Telephone Contact Date of Contact: 11/20/81

Person(s) Contacted: Title/Affiliation:

Dave Harper Biologist - Illinois Dept. of Conservation

Address: Call In XX Call Out

Alton Illinois

Phone #: 618/462-1181

Summary of Discussion: I asked about DOC wood duck censuses in the Hartwell District. Harper said Apple Creek is censused but nothing inside the Levees.

He did not have census results at hand but said that 2 - 3 wood duck broods were usually seen during each annual (June) census. Along with singles and pairs the average number of birds seen on the creek was 18 - 30.

Apple creek is the only creek in the area which is censused because it has not been cleaned and straightened. I asked about Brushy Lake and Harper said he did not census that area but had heard that the new owner had plans to clear and farm the area.

Distribution: [XX] Gore [XX] File [ ] [ ] [ ] [ ]

St. Louis COE
Hartwell Terrestrial Ecology
81-821

TELEPHONE CONTACT REPORT

Person Completing Report: J.A. Gore Date of Report: 11/5/81

Telephone Contact Date of Contact: 11/5/81

Person(s) Contacted: Title/Affiliation:

James Powell Hartwell Drainage & Levee District

Address: Call In ____ Call Out XX

Phone #: 217/945 6380 Office: 945-6321

Summary of Discussion: Powell is a zoologist by training. Says mink, muskrat, weasel and coon are trapped on site. Coyotes present. 10 - 15 deer taken in the district each year. The timber in NW corner was quite a deer haven. There was no water present before timber was removed. Owner (Martin) plans to drain the area for farming.

Brushy Lake (Shrub swamp) is a natural wetland. This is the last year of 5 year lease with duck hunting club. New owner (Best) has mentioned plans to clear the area for cultivation.

Evert Clanton (217/845-6312) runs pumphouse and traps in the area.

Distribution: [XX] Gore [XX] File [ ] ____

[ ] [ ] ____ [ ] ____

St. Louis COE
Hartwell Terrestrial Ecology
81-821

TELEPHONE CONTACT REPORT

Person Completing Report: J.A. Gore Date of Report: 11/20/81

Telephone Contact Date of Contact: 11/20/81

Person(s) Contacted: Title/Affiliation:

Mrs. Evert Clanton Wife of Hartwell Pump Station Operator

Address: Hillview Il Call In ____ Call Out XX

Phone #: 217/945-6312

Summary of Discussion: Mr. Clayton was not in so I asked Mrs. Clanton what her family usually trapped in the district. She said racoon and muskrat were the primary species trapped although an occassional red fox and mink are taken.

Her husband and son are the only ones she knows of who take deer in the district although in the past a family of 12 - 14 people from White Hall hunted deer in the area. They are no longer allowed to hunt here. Mrs. Clanton says deer are frequently seen in the district.

Duck huntinghas been poor this year but hunters typically take several wood ducks and mallards from Brushy Lake. The Clantons saw 6 wild turkeys on the levee this summer. Mrs. Clanton assumes the birds flew across the river from Calhoun County.

Distribution: ☒ XX Gore ☒ XX File ☐ ____

☐ ☐ ____ ☐ ____

APPENDIX C

Estimated Percent Cover of Overstory, Understory, and Ground Cover Plant Species in Four Bottomland Forest Sample Plots In the Hartwell Drainage and Levee District

I. Estimated Percent Cover of Overstory Species in Four Bottomland Forest Sample Plots

Species	Percent Cover			
	1	2	3	4
Silver maple	40	5	10	25
Hackberry	10	20	25	--
Cottonwood	--	--	<1	25
American elm	5	--	--	<5
Swamp white oak	5	--	--	--
Pecan	--	--	5	--
White oak	--	<1	--	--
Hawthorn	--	<1	--	--
Basswood	--	<1	--	--
Black cherry	--	<1	--	--
Slippery elm	--	--	<1	--
Box elder	--	--	<1	--
Pin oak	--	--	<1	--
Ash	--	--	--	<1
Sycamore	--	--	--	<1

Source: ESE, 1981.

II. Estimated Percent Cover of Understory Species in Four Bottomland Forest Sample Plots

Species	Percent Cover			
	1	2	3	4
Hawthorn	5	<5	--	5
Rough-leaved dogwood	5	<5	<1	--
Swamp holly	--	--	10	4
Hackberry	<5	<5	--	--
Silver maple	--	--	--	10
American elm	--	--	--	25
Pecan	--	<5	--	<1
Red mulberry	<1	<1	--	--
Elderberry	<1	--	<1	--
Basswood	5	--	--	--
Slippery elm	--	<5	--	--
Wahoo	--	<5	--	--
Swamp white oak	<1	--	--	--
Spicebush	--	<1	--	--
White oak	--	--	<1	--
Pin oak	--	--	--	<1

Source: ESE, 1981.

III. Estimated Percent Cover of Ground Vegetation Species in Four Bottomland Forest Sample Plots

Species	Percent Cover			
	1	2	3	4
Clearweed	<1	10	<1	<5
Wood nettle	--	20	35	25
Buttercup	--	<1	15	<5
Trumpet creeper	--	<1	5	<5
Catbriar	--	<1	<1	<1
Rose	--	<5	<1	--
Unidentified Grass 3	--	--	5	<1
Bramble	--	--	<1	<5
White avens	--	<1	--	4
Unidentified Grass 1	--	20	--	--
Grape	5	--	--	--
Aster	--	--	5	--
Silver maple	<1	--	--	--
Sedge	<1	--	--	--
Lizard's tail	<1	--	--	--
Violet	--	<1	--	--
Unidentified Grass 2	--	<1	--	--
Smartweed	--	--	<1	--
American elm	--	--	<1	--

Source: ESE, 1981.

APPENDIX D

Plants and Vertebrate Animals Observed in the
Hartwell Drainage and Levee District,
19-21 October 1981

I. Plants Found in the Hartwell Drainage and Levee District and Along Flanking Streams, 19-21 October 1981

Family Common Name	Scientific Name
Pinaceae (Pine Family)	
Pine	*Pinus* sp.
Cupressaceae (Juniper Family)	
Red Cedar	*Juniperus virginiana*
Gramineae (Grasses)	
Fescue	*Festuca* sp.
Blue Grass	*Poa* spp.
Downy Chess	*Bromus tectorum*
Love Grass	*Eragrostis* sp.
Wheat	*Triticum* sp.
Three-armed Grass	*Aristida* sp.
Bermuda Grass	*Cynodon dactylon*
Freshwater Cord Grass	*Spartina pectinata*
Goosegrass	*Eleusine indica*
Munro Grass	*Panicum agrostoides*
Switchgrass	*Panicum virgatum*
Witchgrass	*Panicum capillare*
Fall Panic Grass	*Panicum dichotomiflorum*
Panic Grass	*Panicum* sp.
Barnyard Grass	*Echinochloa crusgallia*
Foxtail Grass	*Setaria* sp.
Broomsedge	*Andropogon virginica*
Cyperaceae (Sedge Family)	
Sedge	*Carex* sp.
Commelinaceae (Spiderwort Family)	
Spiderwort	*Tradescantia* sp.
Juncaceae (Rush Family)	
Rush	*Juncus* sp.
Liliaceae (Lily Family)	
Wild Onion	*Allium* sp.
Catbriar	*Smilax* sp.
Saururaceae (Lizard's Tail Family)	
Lizard's Tail	*Saururus cernuus*

I. Plants Found in the Hartwell Drainage and Levee District and Along Flanking Streams, 19-21 October 1981 (Continued, Page 2 of 5)

Family Common Name	Scientific Name
Salicaceae (Willow Family)	
Black Willow	*Salix nigra*
Cottonwood	*Populus deltoides*
Juglandaceae (Walnut Family)	
Black Walnut	*Juglans nigra*
Pecan	*Carya illinoensis*
Corylaceae (Hazel Family)	
River Birch	*Betula nigra*
Fagaceae (Beech Family)	
White oak	*Quercus alba*
Chinquapin oak	*Quercus muehlenbergii*
Red oak	*Quercus rubra*
Pin oak	*Quercus palustris*
Swamp white oak	*Quercus bicolor*
Ulmaceae (Elm Family)	
Slippery Elm	*Ulmus rubra*
American Elm	*Ulmus americana*
Hackberry	*Celtis occidentalis*
Moraceae (Mulberry Family)	
Red Mulberry	*Morus rubra*
Urticaceae (Nettle Family)	
Wood nettle	*Laportea canadensis*
Clearweed	*Pilea pumila*
Polygonaceae (Buckwheat family)	
Dock	*Rumex* sp.
Smartweed	*Polygonum* sp.
Chenopodiaceae (Goosefoot family)	
Lamb's Quarters	*Chenopodum album*
Amaranthaceae (Amaranth Family)	
Pigweed	*Amaranthus* sp.

I. Plants Found in the Hartwell Drainage and Levee District and Along Flanking Streams, 19-21 October 1981 (Continued, Page 3 of 5)

Family Common Name	Scientific Name
Phytolaccaceae (Pokeweed Family)	
Pokeweed	*Phytolacca americana*
Ranunculaceae (Crowfoot family)	
Buttercup	*Ranunculus* sp.
Menispermaceae (Moonseed Family)	
Canada Moonseed	*Menispermum canadense*
Lauraceae (Laurel Family)	
Sassafras	*Sassafras albidum*
Spice Bush	*Lindera benzoin*
Cruciferae (Mustard Family)	
Yellowcress	*Rorippa* sp.
Platanaceae (Plane Tree Family)	
Sycamore	*Plantus occidentalis*
Rosaceae (Rose Family)	
Hawthorn	*Crataegus*
White Avens	*Geu canadensis*
Bramble	*Rubus* sp.
Rose	*Rosa* sp.
Black Cherry	*Prunus serotina*
Leguminosae (Pea Family)	
Partridge Pea	*Cassia fasciculata*
Black Locust	*Robinia pseudoacacia*
Tick Trefoil	*Desmodium* sp.
Bush Clover	*Lespedeza* sp.
Oxalidaceae (Wood Sorrel Family)	
Wood Sorrel	*Oxalis* sp.
Anacardiaceae (Cashew Family)	
Smooth Sumac	*Rhus glabra*
Poison Ivy	*Rhus toxicodendron*

I. Plants Found in the Hartwell Drainage and Levee District and Along Flanking Streams, 19-21 October 1981 (Continued, Page 4 of 5)

Family Common Name	Scientific Name
Aquifoliaceae (Holly Family)	
Swamp Holly	*Ilex decidua*
Celastraceae (Staff-tree Family)	
Wahoo	*Euonymus atropurpureus*
Aceraceae (Maple Family)	
Silver Maple	*Acer saccharinum*
Box Elder	*Acer negundo*
Vitaceae (Vine Family)	
Grape	*Vitis* sp.
Virginia creeper	*Parthenocisus quinquefolia*
Tiliaceae (Linden Family)	
Basswood	*Tilia americana*
Violaceae (Violet Family)	
Violet	*Viola* sp.
Onagraceae (Evening Primrose Fam.)	
Evening Primrose	*Oenothera* sp.
Cornaceae (Dogwood Family)	
Flowering Dogwood	*Cornus florida*
Rough-leaved Dogwood	*Cornus Drummondi*
Ebenaceae (Ebony Family)	
Persimmon	*Diospyros virginiana*
Oleaceae (Olive Family)	
Ash	*Fraxinus* sp.
Asclepiadaceae (Milkweed Family)	
Milkweed	*Aesclepius* sp.
Convolvulaceae (Morning-Glory Fam.)	
Morning-Glory	*Ipomoea pupurea*
Bindweed	*Convolvulus* sp.

I. Plants Found in the Hartwell Drainage and Levee District and Along Flanking Streams, 19-21 October 1981 (Continued, Page 5 of 5)

Family Common Name	Scientific Name
Labiatae (Mint Family)	
Heal-All	Prunella vulgaris
Field Mint	Mentha arvensis
Solanaceae (Nightshade Family)	
Nightshade	Solanum sp.
Scrophulariaceae (Figwort Family)	
Common mullein	Verbascum thapsis
Bignoniaceae (Trumpet Creeper Family)	
Trumpet Creeper	Campsis radicans
Plantaginaceae (Plantain Family)	
Common Plantain	Plantago sp.
Rubiaceae (Madder Family)	
Bedstraw	Galium sp.
Button Bush	Cephalanthus sp.
Caprifoliacee (Honeysuckle Family)	
Common Elderberry	Sambucus canadensis
Campanulaceae (Bellflower Family)	
Tall Bellflower	Campanula americana
Compositae (Composite Family)	
White Snakeroot	Eupatorium rugosum
Goldenrod	Solidago sp.
Aster	Aster sp.
Daisy Fleabane	Erigeron strigosus
Pussy's Toes	Antennaria plantaginnifolia
Giant Ragweed	Ambrosia trifida
Cocklebur	Xanthium sp.
Rosinweed	Silphium intergritolium
Beggar Ticks	Bidens sp.
Yarrow	Achillea millefolium
Thistle	Cersium sp.
Dandelion	Taraxacum sp.
Lettuce	Lactuca sp.

II. Mammals or Their Sign Observed in the Hartwell Drainage and Levee District, 19-21 October 1981

Common Name	Scientific Name
Opossum	Didelphis virginiana
Eastern Mole	Scalopus aquaticus
Cottontail	Sylvilagus floridanus
Franklin's Ground Squirrel	Spermophilus franklinii
Eastern Gray Squirrel	Sciurus carolinensis
Fox Squirrel	Sciurus niger
Beaver*	Castor canadensis
Muskrat	Ondatra zibethicus
Red Fox	Vulpes vulpes
Raccoon	Procyon lotor
White-tailed Deer	Odocoileus virginianus

* Tracks observed along stream outside the levee.

III. Birds Observed in the Hartwell Drainage and Levee District, 19-21 October 1981

Common Name	Scientific Name
Great Blue Heron	Ardea herodias
Mallard	Anas platyrhynchos
Wood Duck	Aix sponsa
Black Vulture	Coragyps atratus
Sharp-shinned Hawk	Accipiter striatus
Northern Harrier	Circus cyaneus
Red-tailed Hawk	Buteo jamaicensis
American Kestrel	Falco sparverius
Bobwhite	Colinus virginianus
American Woodcock	Philohela minor
Rock Dove	Columbia livia
Mourning Dove	Zenaida macroura
Belted Kingfisher	Megaceryle alcyon
Common Flicker	Colaptes auratus
Red-bellied Woodpecker	Melanerpes Carolinus
Downy Woodpecker	Picoides pubescens
Horned Lark	Eremophila alpestris
Tree Swallow	Iridoprocne bicolor
Barn Swallow	Hirundo rustica
American Crow	Corvus brachyrhynchos
Blue Jay	Cyanocitta cristata
Black-capped Chickadee	Parus atricapillus
Tufted Titmouse	Parus bicolor
White-breasted Nuthatch	Sitta carolinensis
Carolina Wren	Thryothorus ludovicianus
American Robin	Turdus migratorius
Ruby-crowned Kinglet	Regulus calendula
Yellow-rumped Warbler	Dendroica coronata
House Sparrow	Passer domesticus
Eurasian Tree Sparrow	Passer montanus
Eastern Meadowlark	Sturnella magna
Red-winged Blackbird	Agelaius phoeniceus
Common Grackle	Quiscalus quiscula
Northern Cardinal	Cardinalis cardinalis
American Goldfinch	Carduelis tristis
Northern Junco	Junco hyemalis
Field Sparrow	Spizella pusilla
White-crowned Sparrow	Zonotrichia leucophrys
White-throated Sparrow	Zonotrichia albicollis
Fox Sparrow	Passerella iliaca
Song Sparrow	Melospiza melodia

IV. Amphibians and Reptiles Observed in the Hartwell Drainage and Levee District, 19-21 October 1981

Common Name	Scientific Name
Cricket Frog	Acris crepitans
Western Chorus Frog*	Pseudacris triseriata
Northern Spring Peeper	Hyla crucifer
Leopard Frog	Rana sp.
Eastern Box Turtle	Terrepene carolina
Eastern Garter Snake	Thamnophis sirtalis

* Observed along stream outside the levee.

APPENDIX E

Resume's of Principal Investigators

Jeffery A. Gore -- Project Manager and Field Supervisor

Noreen L. Connolly -- Field Assistant

Robert G. Mosher -- Habitat Mapping Assistant

ESE
PROFESSIONAL RESUME

JEFFERY A GORE
Terrestrial Biologist

SPECIALIZATION

Wildlife Ecology, Land Use Impacts Upon Wildlife, Plant Ecology, Habitat Mapping

RECENT EXPERIENCE

Corridor Selection Study for 345 KV Transmission Line, Project Manager--Selection and evaluation of potential transmission line corridors. Determination of preferred corridor based upon environmental sensitivity.

Selection and Evaluation of Proposed Sites for Coal-Fired Power Plant in Illinois, Terrestrial Ecology Subproject Manager--Statewide selection study for three potential plant sites. One year evaluation of terrestrial biota at each site. Preparation of environmental analysis for preferred site; assessment of impacts to wintering bald eagles.

Evaluation of Proposed Site for Power Plant in Central Florida, Project Scientist--Evaluation of wildlife resources at proposed site. Included intensive investigation of endangered red-cockaded woodpecker.

Selection of Potential Sites in Illinois for Locating Synthetic Fuel Plants, Terrestrial Ecologist--Survey of the southern half of the state for areas where synthetic fuel facilities could be located with minimal environmental impact Evaluation and ranking of selected sites with regard to ecological resources.

Selection and Evaluation of Proposed Sites in Southern Illinois, Southwestern Indiana, and Western Kentucky for Locating a Coal-Fired Power Plant, Terrestrial Ecologist--Siting survey for environmentally favorable sites. Evaluation and ranking of proposed sites.

Evaluation of Vegetation and Wildlife Resources on 370,000 Acre Federal Coal Reserve Area in Southeastern Oklahoma, Terrestrial Ecology Subproject Manager--One year study of wildlife and vegetation. Included field investigations, mapping of habitats, and preparation of environmental assessment.

EDUCATION

M.A.	1978	Zoology	Southern Illinois University
B.A.	1976	Biology	University of Evansville

PROFESSIONAL REGISTRATIONS

The Wildlife Society
American Society of Mammalogists
American Ornithologists Union

CERTIFICATION

Associate Wildlife Biologist, The Wildlife Society

ESE
PROFESSIONAL RESUME

NOREEN L. CONNOLLY
Aquatic Biologist

SPECIALIZATION

Aquatic Ecology, Population Ecology, Sampling and Analysis

RECENT EXPERIENCE

Compressed Air Energy Storage System Siting Study for Illinois Electric Utility--Conducted aerial photo interpretations, habitat determinations and mapping of alternative sites. Assisted in biological evaluation of potential sites through analysis of field data and computation of acreage requirements. Assisted with recommendations of prime sites.

Environmental Analysis Report for a Coal-Fired Electric Generating Facility--Assisted in analyzing field data, aerial surveys and mapping of sites, and computing prime sites for recommendation in licensing study for plant facility.

Characterization of Aquatic Habitats of the Mississippi River Between Saverton, Missouri and Cairo, Illinois-GREAT III--Collection of samples and analyses of fish, benthos, and icthyoplankton. Conducted laboratory analyses including sample sorting and identification of benthos, primarily macroinvertebrates and zooplankton. Used dissecting and binocular microscopes. Assisted with data entry and computer analysis.

EDUCATION

M.S.	1981	Biology	Loyola University of Chicago
B.S.	1976	Biology	Loyola University of Chicago

MEMBERSHIPS

Instrument Society of America
Numerical Control Society

MKRESIP-S.2/NLC.1
11/24/81

ESE
PROFESSIONAL RESUME

ROBERT G. MOSHER, M.S.
Aquatic Biologist

SPECIALIZATION

Fisheries Biology, Aquatic Ecology, Stream Surveys, Fish and Macroinvertebrate Taxonomy

EXPERIENCE

Aquatic Biologist, Environmental Science and Engineering, Inc., 1980 to present.

Project Scientist, site selection and licensing studies for Soyland Electric Power Cooperative. Responsible for field sampling and taxonomy of aquatic vertebrates and macroinvertebrates at three potential coal-fired power plant sites in Illinois.

Project Scientist, ecological profile of stream habitats at the proposed General Motors assembly plant in St. Charles County, Missouri. Responsible for collection and taxonomy of fishes and benthic invertebrates, and water-quality field sampling.

Aquatic Biologist, Aquatic Biology Section, WAPORA, Inc., Charleston, Illinois, 1978 to 1979.

Participated in sampling and analysis for adult fish studies and assisted in entrainment/impingement studies in Illinois and Indiana.

Fisheries Technician, Fisheries Section, NALCO Environmental Sciences (not Hazelton Env. Sc.), Northbrook, Illinois, 1977.

Assisted in entrainment/impingement studies at Dresden Power STation in Illinois. Also participated in adult fish sampling at various locations off Zion Power Station in Illinois.

EDUCATION

M.S.	1979	Zoology	Eastern Illinois University
B.S.	1977	Zoology and Environmental Biology	Eastern Illinois University

ASSOCIATIONS

American Fisheries Society

MKRESIP-S.2/RQM-2
11/10/81


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